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Present Status of the Venereal Disease Control Program in Mobilization and National Defense*

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SINCE the beginning of the national defense program, two important events have occurred which relate to the control of the venereal diseases. The first of these was the mobilization under the Selective Service System, which makes possible, through the examination of a large representative portion of the manpower of the country, a much more exact determination of the prevalence of syphilis and which also presents an opportunity to bring a larger number of men infected with syphilis and gonorrhea under treatment than ever before in the United States. The second relates to the instructions by the Congress that the facilities for the control of the venereal diseases, developed as a civilian health program in the preceding years, be intensified and adapted to the new requirements created by the present mass movement of large population groups.

On the basis of preliminary reports from 41 states and territories, the program of serologic blood testing for syphilis in the examination of Selective Service candidates has shown that among the first 950,000 men examined, approximately 50,000 had positive tests. In addition, the physical examinations of selectees before local Selective Service medical boards and Army induction boards have resulted in the rejection of substantial numbers of men with the lesions of early syphilis and with gonorrheal infections.

An attempt has been made to ascertain whether the selectees with positive serologic tests have been brought to physical examinations to clinch the diagnosis of syphilis, and, if so, whether they have been placed under treatment. This investigation shows that in most states existing epidemiologic and treatment facilities have been very inadequate. In the 20 states and territories which have reported on the follow-up of selectees, only 43 per cent have been brought in for physical examination, and less than 31 per cent have been classified as being under medical care for syphilis. No definite reports are

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as yet available on the follow-up of men rejected for gonorrheal infections, but there is every reason to believe that the follow-up and treatment services for these men are of a grade inferior to those rendered the men infected with syphilis.

These facts clearly indicate failure to develop an effective scheme for the follow-up and treatment of persons suspected of being infected with syphilis and gonorrhea. This situation is hardly surprising because reports from state departments of health at the beginning of the present fiscal year showed that only 65 per cent of the venereal disease clinics throughout the nation were provided normally with follow-up workers and the remainder did not employ even a part-time follow-up investigator. Only 15 per cent of the venereal disease clinics in the United States employed full- or part-time workers with some degree of special training in the principles of venereal disease epidemiology. In other words, at least one-half of the venereal disease clinics in existence at the beginning of the present fiscal year depended for contact tracing and case finding on part-time and untrained investigators, and two-thirds of the remaining clinics had no follow-up personnel. The present inadequacy of follow-up work not only in the general venereal disease control program, but as pertains also to the work connected with the Selective Service System, is chiefly due to failure properly to train personnel. It is also possible that the present system of generalized public health nursing is not effective because of an inadequate number of nurses employed and their limited experience in venereal disease control work.

The reports submitted by state health officers also show that in most instances there has been no clear-cut organizational procedure for reference back to Selective Service boards of men originally rejected for the venereal diseases and subsequently rendered noninfectious by adequate therapy. This problem is especially acute as it relates to the deferment of selectees with gonorrhea, in whom, through the use of modern chemotherapeutic treatment, postponement of military service for a period of more than one month is extremely illogical. Routine procedures should be developed for the immediate return to the Selective Service boards upon the completion of treatment of all selectees deferred solely for venereal disease infections.

To provide effective facilities for all men found to be infected with the venereal diseases under the Selective Service System, the following plan is recommended:

1. The establishment of procedures for the follow-up of all selectees rejected for syphilis and gonorrhea, including the provision of treatment, the tracing and examination of their contacts, and the treatment of such of these contacts as are found to be infected.

2. The establishment of special investigators who will study the results of all examinations and laboratory tests performed on selectees to appraise the efficiency of follow-up service both for the selectee and for his contacts and to hold such infected persons under treatment until rendered noninfectious.

3. The organization of a procedure for reference back to Selective Service boards of men originally deferred for syphilis and gonorrhea and subsequently rendered noninfectious by adequate treatment.

4. The provision of sufficient trained personnel to insure effective contact tracing of alleged civilian contacts with gonorrhea and syphilis patients in the military personnel through a coöperative arrangement between all military medical and civilian health authorities.

5. The establishment of a program applying the above methods and technics to the specific problems of the control of syphilis and gonorrhea in industry and especially in the national defense industries.

6. The development of an effective educational program to inform the public and the armed forces of the need for adequate follow-up and treatment services and to discourage those who are infected from seeking treatment from quacks or other unlicensed treatment sources.

The progress reports submitted by state and territorial health departments, as of the first half of the present fiscal year, showed that more than 50 per cent of patients with syphilis who sought licensed medical care were in either the late or the late latent stages of this disease. In public clinics, less than 12 per cent of the total syphilis case load was composed of previously untreated patients who were admitted with primary or secondary syphilis. Since the major concern of the health department in the attack upon syphilis is the early, infectious patient, it is essential that everything possible be done to provide adequate treatment for such early patients and to discourage the attendance of patients with late and late latent syphilis beyond the time when adequate treatment has been given.

There is additional evidence from other sources to show that late and late latent syphilis now receives major attention in public clinics. Approximately 60 per cent of the antisyphilitic treatments given in such clinics were to patients with syphilis in these late stages.

In most clinics there is a tendency to devote far too much time to case holding of patients with late and late latent syphilis. So long as epidemiologic and treatment facilities are not utilized for the purpose of controlling early and infectious syphilis and gonorrhea, but to insure continuous care for patients with late syphilis, there will be insufficient follow-up and therapeutic services available to cope with the essential and fundamental public health problem. If a successful war is to be waged against the venereal diseases, every effort must be made to provide adequate treatment for all early infectious patients and to find and treat, if necessary, all contacts of patients in this category.

Experience in defense areas shows that gonorrhea is the venereal infection which occurs with much the greater frequency. One gains the impression that this situation is due to neglect of this disease because the knowledge is available which would eliminate it as a public health problem within several years if a reasonably adequate program were developed. The Congress has also expressed a deep interest in the gonorrhea problem and has placed upon the Public Health Service the responsibility of developing a concerted national attack.

A marked rise in the number of laboratory tests performed to aid in the detection of gonorrhea and some increase in the number of persons under treatment by private physicians and public clinics offer a degree of encouragement for the future of the gonorrhea control program. The following measures should be intensified, however, to insure the greatest progress:

1. Provision of facilities for the clinical management of gonorrhea in all venereal disease clinics throughout the United States. It is still true that almost 30 per cent of the nation's venereal disease clinics do not admit patients with gonorrhea. This situation exists in spite of the fact that Section XV, paragraph 3 of the Regulations Governing Allotment of Venereal Disease Control Funds stipulates that "free diagnostic and treatment facilities for both syphilis and gonorrhea shall be provided by all health departments or clinics receiving funds under this Act . . ." If a larger percentage of the venereal disease clinics in the country do not change their policy materially with reference to gonorrhea, it may be necessary to prohibit the reallotment of federal funds to clinics which refuse to admit such patients.

2. There is considerable evidence to show that state and local health departments are distributing sulfonamide compounds which are already archaic.

Sulfanilamide especially should be replaced by newer sulfonamide compounds of much greater therapeutic efficacy. In the last two Conferences of State and Territorial Health Officers, you were informed that sulfathiazole was much more effective than any other sulfonamide compound which had been studied carefully up to that time. This situation still exists; yet, in spite of the proven efficacy of sulfathiazole for gonorrhea, only 200,000 tablets of this compound were reported as having been purchased and distributed by state health departments during the first half of the present fiscal year, as compared with 3¼ million sulfanilamide tablets. The Public Health Service has developed a system for rapid clinical appraisal of the efficacy of the new sulfonamide compounds, and these findings will be made available upon request to your state venereal disease control officer. Until the exact efficacy has been established of the numerous sulfonamide compounds available for the treatment of gonorrhea, health departments should purchase these compounds in quantities sufficient to last only for a period of from two to three months.

3. The need continues to exist for the development of facilities for the culture of the gonococcus in public laboratories. The culture remains the most efficient method for the determination of cure in this disease.

4. Many states regard the gonorrhea problem as being so unimportant that no progress records are available from them indicating the control measures against gonorrhea. In many other states the progress reports are meager and only incompletely made. Consequently it has been very difficult for the Public Health Service to obtain reasonably exact information as to the extent of the facilities and services available in the United States for the control of gonorrhea. Such progress records are important not only to determine the progress which has been made from year to year, but also to ascertain the needs which now exist or which may arise in the future.

Immediate attention should be given to the utilization of educational and public relations technics and materials as a practical arm of venereal disease control, not only in areas of armed and industrial defense concentrations, but also with a view to laying a groundwork for the future program. The implications of this statement should be clearly perceived, for the future course of venereal disease control work may depend on the degree to which a sound educational and public relations program is carried on during these crucial days.

As an immediate step, the Public Health Service is substantially increasing its venereal disease educational services to the states. A consultation and advisory plan makes available trained workers who will collaborate, upon request, in the development of state and local activities. The production service makes available professionally written and designed publications, posters, exhibits, radio and motion picture materials at costs in comparison to results far below the capacity of any single state.

The Public Health Service is becoming increasingly concerned both with the quality of educational materials being produced by the several states, and with the organization of the educational programs. Studies recently made indicate a failure to appreciate many fundamental and practical pedagogical, public relations, and graphics factors in the preparation of publications, and a failure to adjust programs to changing conditions. To say this is to assess no blame. Perhaps not even in the more fortunately situated states and municipalities is it feasible to employ the necessary staff of trained and experienced persons to carry out a

program of both production and use.

The practical solution for production of effective materials would be to establish a coöperative relationship between the states and the Public Health Service whereby the facilities of all agencies could be utilized to the fullest extent.

The Public Health Service is in a position to make use of the finest talent available in the educational fields, and, as in other fields, will not hesitate to do so to aid the states better to do their tasks. It is prepared also to give full credit in the materials themselves to the various state departments of health. As you know, federal funds available under the Venereal Disease Control Act may be utilized for the purchase of educational materials produced by the Public Health Service, as well as to finance the production of educational materials in the state or local health department.

Faced with the problem of acute shortages of trained personnel, it is imperative that every effort be made to conserve our resources by assignment of tasks to those best qualified to handle them most economically and efficiently. It is recommended, therefore, that state health officers seriously consider the advisability of utilizing more directly and actively the venereal disease education consultative and production services of the Public Health Service.

Consideration should also be given to the more rapid development of broad programs of public health education, utilizing materials produced jointly. Such activities would be of mutual benefit to venereal disease control and general public health, since the practical potentialities of health education in any specific field can only be realized through a comprehensive and integrated program.

In the interest of economy and greater efficiency, the Public Health Service, therefore, urges the development and adoption of a coöperative plan of general health education, which would be coördinated on federal, state, and local levels.

And finally two more recommendations are made for improvement of the entire venereal disease control program as it relates not only to invulnerable national defense, but also to its final successful prosecution throughout the United States.

1. Intensive training in the epidemiology of the venereal diseases of otherwise qualified new and old follow-up personnel, especially in contact tracing and case holding of patients with infectious or potentially infectious syphilis and gonorrhea.

2. The development of measures to discourage the present tendency of treatment sources to over-treat patients with late and late latent syphilis, especially when such treatment sources fail to provide adequate therapy and follow-up for patients with early infectious venereal diseases.

What the Navy Is Doing to Protect Its Personnel Against Venereal Disease*

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THROUGH the persistent efforts of modern medicine, most of the major disease scourges of mankind have been eradicated or controlled in the United States. By a progressive process of elimination, this hitherto large group of diseases has been narrowed down until tuberculosis, malaria, the pneumonias, and the venereal diseases remain as the leading ones. Of these, the venereal diseases have become the outstanding public health problem of the day, and consequently the greatest single challenge to the medical profession. In accepting this challenge there has developed among federal, state, and civilian health authorities a fourfold method of attack consisting of (1) public education, (2) prevention, (3) control, and (4) treatment. There are those who believe that any hope for complete eradication of the venereal diseases is mere wishful thinking. Nevertheless, by striving for this goal, the other points in any well organized venereal disease program automatically fall in line. The antivenereal disease program of the U. S. Navy follows the same broad general lines.

Each man in the military services is a citizen of our country. Every man in the Navy pursues one of two ultimate courses. Either he returns to civilian life after a varying period in the naval service, or he chooses the Navy as a life career. If he elects to follow the former course, it is the moral obligation of the Navy to return him to civilian life a more useful citizen, free from disease, benefited by discipline and training, and with a better knowledge of hygiene, sanitation, and health. Should he choose the latter course, by virtue of his training and experience, he in time becomes of inestimable value as a key man in the work of his specialty and in training younger men for that specialty. The efficiency and effectiveness of this system vary directly in proportion to the nature and extent of the morbidity of the personnel of the Navy.

For years, gonorrhea has remained second and syphilis sixth among the leading causes of morbidity in the U. S. Navy. Modern preventive medicine has never accepted the timeworn and threadbare adage that "a case of gonorrhea is no worse than a bad cold," despite the fact that one hears of this saying continuing to be accepted among laymen in some backward and non-public-health-minded parts of our country. Setting aside the well known disabling effects of the complications of gonorrhea and syphilis, each infection with one of these diseases almost

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invariably represents a certain number of man-days of service lost to the Navy, and therefore a lowering of effectiveness.

The motto of the Medical Department of the Navy is *to keep as many men at as many guns, as many days as possible*. In upholding this maxim, the Surgeons General and entire Medical Corps of the Navy have always recognized that the prevention, control, and treatment of the venereal diseases are among their leading major problems and responsibilities. Some idea of the magnitude of the problem can be gained from the fact that during 1939 there were 16,277 admissions, and a total of 156,506 days lost on the sick list among Navy personnel because of venereal diseases. This is equivalent to having the entire complement of 79 new destroyers or 21 heavy cruisers or 11 battleships infected with venereal disease at some time during that year. In terms of man-days lost, the total sick days charged to venereal disease during 1939 would be equivalent to having the entire crew of two modern destroyers on the sick list every day during the entire year.

The Navy recognizes that among its greatest responsibilities are the physical, moral, spiritual, and intellectual development and guidance of the young recruit. He is uprooted from a sheltered home environment and abruptly transplanted into service life, where, after a comparatively short period in a training station, he may be sent to some ship or station in a foreign land. Here he may find social and economic standards, religious beliefs and moral outlooks widely divergent from those of the environment in which he has been reared. Oftentimes before these young men can adjust themselves they may find themselves literally surrounded with conditions of vice where all of the social and moral restraints of American civilization are lacking, and where an entirely different outlook prevails. These are not casual theories but are observations based upon statistical analyses. The venereal disease rates in the Navy are the highest among personnel on Asiatic duty. A recent 10 year study of gonorrhea in the Navy reveals that the rates of practically all ships and stations outside of the continental United States are in general higher than are those within the continental limits.

Preventive and protective measures in the Navy begin at the recruiting stations, through the processes of selection and screening. From 1929 until the present emergency, the U. S. Navy has had more applicants than were needed to fill the vacancies in its complement. From among these applicants, every effort has been made to select the higher type of individual, with the best educational, sociological, and economic background. As a result, during this period, the Navy has been able to procure an excellent type of recruit. It is felt that this fact has played a part in the reduction of venereal disease during the past 10 years.

At the recruiting stations, all applicants who show any evidence of being infected with venereal disease are rejected. Routine blood serological tests for syphilis are done on all new recruits. Those having repeatedly positive tests are rejected.

In the training stations, the men are educated in sanitation, group hygiene, personal hygiene, and sex hygiene by means of lectures, lantern slides and moving pictures. The value of continence is stressed; the hazards of illicit intercourse are pointed out. The dangers of consorting with prostitutes, in increasing the chances of acquiring venereal disease are emphasized. The seriousness of syphilis and its effect on the future life and health of the individual infected are stressed.

During the training period, every

effort is made to assist the newly inducted recruit in adjusting himself to this unaccustomed environment and entirely new mode of life. The fact is recognized that he has been transplanted from a home environment, wherein he has had very little or no contact with the sordid side of life. His conceptions of womanhood have been formed in a protected home environment. From these surroundings he is transposed to a masculine world of strict military discipline. However, by contrast, while he is on leave or liberty in this new world, he finds himself in a strange city, personally unknown to the local citizens. Here he tastes a type of freedom entirely new. Should he so desire he is at liberty to cast aside all of his ideas of morals and social conventions which have been built up by family ties during his more formative years. He soon realizes that such a course, should he choose it, does not carry with it the danger of opprobrium, social disgrace, and scandal which normally would be his lot were he in his home surroundings. Add to this his immaturity (the average age among new recruits in our Navy is about 20 years), and there exists a perfect combination of circumstances wherein the new recruit may fall an easy prey to the wiles of prostitution, or to any other form of vice. This is the most dangerous period of his Navy career from the viewpoint of possibility of exposure to and danger of contracting venereal disease. These statements are not mere theories, but are borne out in the cold light of statistics. In the recently completed 10 year study of gonorrhea in the Navy it was seen that the highest rates for this disease occur: (1) during the period of the first enlistment, and (2) in the age group 20–24 years. Among the men who are more mature both in age and in years of service, there are correspondingly lower rates. Hence, the necessity for emphasizing venereal control measures among (1) the personnel on foreign service, and (2) the younger men in their first enlistment period is recognized.

Could the Navy prevent, reduce, or control the problem of prostitution, its antivenereal disease campaign would be greatly simplified. It is generally recognized that the prostitute is the principal source of venereal disease. Under our American system, the responsibility for measures for the suppression of prostitution does not come under the direction of military and naval authorities. This is a function of the local police and health authorities. Unfortunately there is no uniformity of effort or method. Interest in, and intensity of activities vary with the amount of funds available, with the presence or absence of trained personnel, and with local public interest in the matter. If the local community is unfortunate in having political interference in its police and public health activities, or, even worse, to have graft and corruption involved, then the situation becomes infinitely worse from the viewpoint of curbing prostitution. Under such circumstances, much of the benefit to be expected from the venereal disease control program of the Navy is nullified.

Hence we see from experience, observation, and statistics that it is while the new recruit is undergoing his readjustment to military life, during the early part of his first enlistment, and before he has had an opportunity to weigh and consider a new set of values that he is most likely to contract venereal disease.

For years, it has been recognized that the weakest point, in so far as the venereal disease program is concerned, has been the loss of control over the men during their off-duty periods, while on leave or liberty. In the past, the attitude was held that during such periods, a man's time was his own, and

what he did on his time away from his ship or station should be no concern of the military authorities so long as he did not run afoul of the civilian police authorities; furthermore, that any attempt to intrude upon or to regulate his activities, would be an infringement upon his personal rights as a citizen of our democracy. Later this viewpoint was modified with regard to venereal control measures. It is a sad commentary that such a paradox should exist, wherein on one side of the picture, while on duty, the Navy man is surrounded with and protected by every known means of safeguarding his health, the cost of which represents a considerable investment, while, conversely, when he leaves his ship or station on liberty he all too frequently is exposed to, and victimized by a depraved and sordid group of exploiters, who care nothing for his health, and whose only concern is the profit to be gained from their illicit and degrading enterprises. Fortunately, public opinion has been awakened, thanks to the excellent work in this field of agencies, such as the U. S. Public Health Service, the American Social Hygiene Association, the American Medical Association, and the American Public Health Association. Despite the excellent progress made, it is believed that the American public has not yet been aroused sufficiently to appreciate fully the gains that may be made by their coöperation in the field of sociology, especially with regard to the armed services. This they can do by displaying a friendliness toward, and by taking an interest in, the service men in their midst, for much of the success in providing wholesome recreation and entertainment for the Navy men depends upon their interest in these matters. Aboard ship and at shore stations, every possible healthful diversion is provided for the men while not on duty. However, it is a well recognized fact that keeping the men aboard too long is not good for morale. Being human, they long for feminine company, and being young and healthy, they have a zest for new sights and experiences and adventures.

The Navy is doing everything possible to coöperate with and to encourage the admirable work being carried on by the various agencies fighting the spread of genito-infectious diseases. It is true that public interest has been partially aroused. However, American public sentiment must be brought to the realization that the venereal disease question in the Army and the Navy is not purely a problem within the services. Not only is it one which reflects local vice conditions, but it is also a problem which affects, either directly or indirectly, the health and well-being of the entire nation. This is especially true in time of national emergency, when the Army and Navy must be increased to a size many times their peacetime strength; later to be reduced to peacetime needs. The Navy would like to see the American public educated to realize: (1) that each case of venereal disease in the services has its origin in the civil population; (2) that prostitution flourishes uncontrolled, is controlled, or is stamped out only by the weight of local public opinion existing in the civilian populace; (3) that the activity and efficiency of the local health and police agencies in controlling venereal disease are directly dependent upon the degree of interest shown by the citizens in these agencies; and (4) that the personnel of the armed services are not strangers and outsiders in their midst, to be treated indifferently, but are their own fellow citizens, yes, in many instances, their own brothers, sons or kin.

Civic, church, patriotic, and women's organizations, as well as civilians in general, should be awakened to the realization that they are patriotically and morally obligated to take an in-

terest in the service man while he is off duty, and to provide him with wholesome diversions and with social activities wherein he will meet the proper type of feminine company. It will then be seen that by taking such an interest, conditions will automatically become less favorable for the prostitute and other forms of vice to attract the service man. The public spirited citizen should be educated to appreciate that a disinterested or indifferent attitude toward the younger service man will result in his being surrounded by a vicious group seeking to exploit him, and tempting him with all of the wiles of prostitution to fill in his idle time while he is off duty. It is with these facts uppermost in mind that naval authorities are attempting to arouse the interest of local civilian authorities and organizations.

If, by his behavior while on liberty, a Navy man deliberately subjects himself to the possibility of contracting a disease which results in a loss of man-days and efficiency to the Navy, then his conduct under these circumstances should be of concern. As one method of approach to this angle of the venereal disease problem, stringent disciplinary measures were established in the early part of this decade. Under these, a man who contracted venereal disease and who had not taken prophylaxis or one who deliberately concealed venereal disease was by regulation required to be given a court-martial. Also by regulation, a man's quarterly proficiency marks in his rating were required to be lowered so as to preclude temporarily the possibility of advancement.

Following the institution of these measures, the venereal rates began to drop. One had but to observe the increase in practice of civilian physicians in Navy ports to realize what was happening. It was apparent to the enlisted man that it meant far more to the future of his career in the Navy to attempt to conceal his venereal disease and to be treated ashore, rather than to report to his medical officer. The net result of these measures was to drive venereal disease underground and to increase attempts at concealment. This in turn resulted in irregularity and inadequacy of treatment of the concealed cases and a consequent increase in complications. These disciplinary measures had a marked deleterious effect on morale, since they tended to create a lack of confidence among the men in their officers, who were required by regulations to subject them to disciplinary action. Commanding officers and medical officers soon realized the unfairness of punishing men for the misfortune of becoming infected, while men equally as guilty of exposure to venereal disease, yet who either did not become infected, and therefore were not detectable, or who, becoming infected were able to conceal their infection, escaped punishment. It was as a result of these observations that many of the disciplinary measures were revoked. The Navy has come to realize the futility of attempting to lower venereal disease incidence by disciplining the infected individual. Today, the only court-martial offenses are: (1) deliberate concealment of venereal disease, and (2) going absent without leave when confined to ship or station during the infectious stage of the disease, because, as one measure of control, a case of venereal disease is confined to his ship or station during the communicable stage. Punishment for failure to take prophylaxis as a control measure was determined to be impracticable for the same reasons.

Throughout the Navy frequent inspections of personnel are held to search for concealed venereal disease cases, because deliberate concealment is looked upon as a major crime, owing to the close living conditions. The frequency with which inspections are

made, as a measure of control, is a matter which is left to the discretion of the commanding officer who is usually guided by the recommendation of his medical officer. In addition, throughout the Navy, an inspection of food handlers is conducted once a week, which is very thorough and includes inspection for venereal disease.

It is true that some of the enlisted men do not think about the future in a practical way. Some men cannot be made to feel that, should they become infected, the serious consequences of venereal disease often observed in their shipmates are likely to happen to them. The information that the serious effects of syphilis not infrequently become manifest in later years in the form of hopeless lesions in the cardiovascular and central nervous systems makes little impression upon the irresponsible type of individual.

It is for these reasons that the Navy man is subject to a constant repetition of instruction in personal and sex hygiene, and in the possible ill effects of syphilis upon future life, health, and happiness.

Since 1909, naval authorities have considered chemical prophylaxis an important part of their program to curb venereal disease. In the instruction in sex hygiene repeatedly given to the men, the purpose and value of chemical prophylaxis are included. It has been learned by experience that a good number of the men are incapable of self-administering chemical prophylaxis thoroughly. Because of this, it has been the policy to provide trained hospital corpsmen to supervise and instruct in the administration of this type of prophylaxis. In Navy ports whenever there are large concentrations of ships, first aid stations are established ashore. Each of these has a prophylaxis unit. Here a record is kept and copies are provided for the medical activity concerned.

In port, the Navy provides its own police force ashore, known as the Shore Patrol. In general, it is charged with the maintenance of order among Navy personnel. The Shore Patrol also functions indirectly as a public health unit in that (1) it may be directed to place certain sections of a city known to contain brothels, or specific houses of prostitution, out of bounds to naval personnel, and (2) it may return men, who are obviously incapable of taking care of themselves, to their ship or station.

Navy prophylactic materials and technic are standardized. At the Naval Medical Center in Washington, constant and continuous research is being conducted in an effort to improve upon or discover a better technic or an improved ointment for venereal disease prophylaxis. In the technic of prophylaxis as outlined to the men, the following steps are insisted upon: (1) to take chemical prophylaxis as soon after exposure as possible; (2) to urinate; (3) to wash exposed parts thoroughly with soap and water; (4) to instil colloidal silver solution into the anterior urethra, and to retain it there for at least 5 minutes; (5) to apply a special Navy calomel ointment thoroughly to all exposed parts.

Unlike the civilian, the Navy man is compelled to undergo treatment for venereal diseases, and his treatment is closely supervised by medical personnel highly trained in the therapeutics of these diseases. In addition to conducting its own research and studies, the Navy Medical Department observes closely all advancements and developments in methods of venereal disease treatment. These, when proved and accepted are added to the Naval doctor's armamentarium. One of the more recent venereal disease control measures utilized by the Navy, is that of coöperation with the local police and health authorities. This has proved to be

mutually helpful. Whenever this information is procurable, Naval medical authorities are required to report to local health authorities sources of venereal infection and the names of civilians who have been reported as exposures to a known Navy case. In many parts of the country the local health authorities report Navy exposures to known civilian cases. Coöperation of this nature is variable but contributes some part to control, both in the local community and in the local Naval unit.

Every known case of venereal disease in the Navy is recorded in the health record of the individual infected. Luetic cases have a special form provided which becomes part of the man's health record. Entries include diagnosis, treatment, progress, complications, reactions, and blood serology. Every case is reported centrally to the Bureau of Medicine and Surgery on a statistical form provided for reporting all diseases and injuries, and special reports on arsenical reactions are submitted quarterly. This information is transposed to punch cards for machine tabulation and statistical analysis. The venereal disease problem of the Navy is constantly being observed and studied under varying naval conditions. Special reports on the genito-infectious disease conditions in civilian communities in the neighborhood of naval activities are received and incorporated as part of the Force Surgeon's report and of the Sanitary Reports from various medical units afloat and ashore.

The subcommittee on venereal diseases of the Committee of Medicine, National Research Council, on which the services are represented, is now working on standardized forms for reporting venereal diseases. Should they be adopted, the way will be paved for uniformity of reporting, analyzing, and comparing venereal disease statistics, for broader centralized recording of information relating to the effectiveness of various drugs used, and for providing uniform mass information on the circumstances under which an infection was acquired. It is hoped that these forms will be adopted by the Army, Navy, U. S. Public Health Service, the coöperative clinics, and other clinics.

In September, 1940, representatives of the Surgeons General of the U. S. Public Health Service, Army, and Navy published a joint agreement setting forth a plan for *Co-operation of the U. S. Public Health Service in Extra-military Sanitation.* This agreement has been approved by the Administrator of the Federal Security Agency, the Secretary of War, and the Secretary of the Navy. In it is incorporated a joint program which it is believed will assist in reduction of the spread of venereal diseases. Briefly the agreement is as follows:

"It is recognized that the following services should be developed by the state and local health and police authorities, in coöperation with the Medical Corps of the U. S. Army, the Bureau of Medicine and Surgery of the U. S. Navy, the U. S. Public Health Service, and interested voluntary organizations.

"1. Early diagnosis and adequate treatment by the Army and Navy of enlisted personnel infected with venereal diseases.

"2. Early diagnosis and treatment of the civilian population by the local health departments.

"3. When authentic information can be obtained as to the probable source of extra-marital venereal disease infection of military or naval personnel, the facts will be reported to the state or local health authorities as may be required. If additional authentic information is available as to the extra-marital contacts with diseased military or naval personnel, during the communicable state, this should be reported.

"4. All contacts of enlisted men with infected civilians to be reported to the Medical Officers in charge of the Army and Navy, by the local and state health authorities.

"5. Recalcitrant infected persons with communicable syphilis or gonorrhea to be forcibly isolated, during the period of communicability; in civilian populations it is the duty of the local health authorities to obtain the

assistance of the local police authorities in enforcing such isolation.

"6. Decrease as far as possible, the opportunities for contacts with infected persons. The local police department is responsible for the repression of commercialized and clandestine prostitution. The local health department, the state health department, the U. S. Public Health Service, the Army and the Navy will coöperate with the local police authorities in repressing prostitution.

"7. An aggressive program of education both among enlisted personnel and civilian population regarding the dangers of the venereal diseases, the methods for preventing these infections, and the steps which should be taken if a person suspects that he is infected.

"8. The local health and police authorities, the state department of health, the U. S. Public Health Service, the Army and the Navy desire the assistance of representatives of the American Social Hygiene Association or affiliated social hygiene societies or other voluntary welfare organizations or groups in developing or stimulating public support for the above measure."

It is an accepted fact that one of the most important single steps which will materially decrease the possibility of exposure to venereal disease is the providing of adequate diversions such as moving pictures, entertainments, dances, athletic contests, and sightseeing trips during recreational time. It has been observed that the venereal disease rates in the various subdivisions of the Navy vary inversely as these diversions are present. It is a regrettable fact that in many locations of foreign duty, prostitution and vice are found widely prevalent and the availability of space and facilities for healthful diversions are limited or actually restricted.

In summation, it is believed that the combination of youth, inexperience, freedom from possibility of censure for violating social conventions, contact with prostitution and other forms of vice before having evaluated the seriousness which venereal disease may mean to future life, and lack of sufficient healthful forms of diversion are the factors responsible for the venereal disease problem in the U. S. Navy today.

CONCLUSION

In concluding it might be well to emphasize that venereal diseases are preventable, that they are acquired from civilian sources, and that prostitution is the chief source of infection. While many aspects of the venereal disease control program in the Navy are medical, much of the work comes under the headings of discipline, recreation, athletics, and social service. Undoubtedly, further success can be attained by additional coöperation on the part of civic, patriotic, veterans, church, and women's organizations who are interested in the diversions and welfare of service personnel.

It is believed that greater success can be derived by concentrating greater efforts on the sociological phases of the problem.

NOTE: The opinions and assertions expressed herein are those of the writer, and are not to be interpreted as being official or as reflecting the views of the Navy Department or of the Naval service at large.

Immunity and Positive Tuberculin Reaction

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THE majority of people infected by the tubercle bacillus never become ill, do not show any symptom or sign of tuberculosis except that all react positively to a tuberculin skin test; they are "positive reactors." In this way they may be differentiated from other apparently healthy people who have never been infected by the tubercle bacillus because without infection a positive tuberculin reaction to standard dosage is not possible. Such individuals may be called "negative reactors" or, better, "non-reactors." A few people lose the positive reaction in the course of years[1] but in the great majority of cases if the test is once positive, it continues positive throughout life. The complete loss of the positive reaction in an individual indicates that the primary infection is completely healed, usually by calcification. Such an individual may again acquire a new infection.[2] This second infection will have all the pathologic characteristics of a primary infection, and the tuberculin reaction in that person will again become positive. Until the early years of this century almost everyone acquired the primary infection before 18 years of age, and even today most adults in cities have at some time or other had a tuberculous infection, as evidenced by a positive tuberculin test.

In the last few decades an increasing number of young people reach the age of 18 without infection.[3] In a group of students, many of whom came from sparsely settled areas, as high as 76 per cent tuberculin non-reactors has been found.[4] Among the young women enrolling for nurses training in New York municipal hospitals about 45 per cent are non-reactors, and 55 per cent are positive reactors.

The epidemiologist anticipates the day when no one acquires any primary infection, which will be indicated by a population of non-reactors. Only then will the number of people becoming ill with tuberculosis be reduced to zero. Until that time arrives and, indeed, to hasten its arrival, it is important to determine the effect of the primary infection on this vast majority of people who do not exhibit clinical tuberculosis as a sequel to this primary infection.

Can such a person subsequently develop clinical tuberculosis by again inhaling tubercle bacilli disseminated by a tuberculous patient? Does the primary infection produce any change in susceptibility or resistance to subsequent exposure to tuberculosis? Experimentally, superinfection can be effected.[10] On what evidence can we determine susceptibility or resistance in human beings?

The best evidence would be diligent observation of a group of positive tuberculin reactors. Anyone showing any evidence of clinical tuberculosis at the

beginning of the observation period must be excluded. All members of the group must be exposed to infection sufficiently often and in a manner capable of causing infection in those without immunity. If, under such circumstances, the tuberculosis morbidity in this group is high, we may conclude that the new exposure is responsible for the disease. Such a result means that a new or "superinfection" has occurred—that the positive tuberculin reaction does not indicate any immunity from exogenous reinfection or superinfection. If the morbidity is lower than that expected for that age-sex group, then the intense reëxposure does not cause disease. Such low morbidity means that the positive tuberculin reaction is an indication of resistance against the new infection, or, phrased in another way, exogenous reinfection does not occur. As tuberculous disease develops solely in those who are tuberculin positive, a few cases of clinical tuberculosis are to be expected among positive tuberculin reactors even though there is no new exposure whatsoever.[4] If, therefore, the morbidity is very low in this group intensively exposed, we may conclude that positive tuberculin reactors have developed resistance which is equivalent to complete immunity to new exogenous infection.

GROUP OF POSITIVE TUBERCULIN REACTORS

In a period of 5 years, 1,320 young white women in good health, with positive tuberculin reactions, aged 17 to 23, trained in four nurses' schools of New York City hospitals. They are in the age group in which the tuberculosis morbidity for women is at its peak.[6]

Each member of the group, on enrollment, had a roentgenogram which showed no clinical tuberculosis. Those who showed any parenchymal lesion on this first film are not included in this group. Additional films were taken every 6 months or oftener. Of these girls 92 per cent reacted positively to the first dose tuberculin test (0.1 mg. OT or 0.00002 mg. PPD). The other 8 per cent were positive to the second dose only (1.0 mg. OT or 0.005 mg. PPD).

WAS THE EXPOSURE SUFFICIENT TO INFECT?

All of these student nurses worked on the wards of the city hospitals where patients with pulmonary tuberculosis are frequently admitted and remain until diagnosed. Most of these nurses also worked from 4 to 8 weeks on wards exclusively for tuberculous patients.

Would such exposure be sufficient to infect a susceptible person? Heimbeck[7] in Norway and Holm[8] in Denmark showed that almost all pupil nurses who are non-reactors to tuberculin before beginning their course of training become infected and are tuberculin-positive before the end of 3 years. A number of investigators[9] have shown that the situation is the same in this country.

Enrolled together with our group of 1,320 tuberculin-positive reactors was a second group of 910 non-reactors from the same social and economic section of the population. The two groups, positive reactors and non-reactors, lived together, were assigned the same work, ate the same food. No two groups could be more nearly identical in physical characteristics, manner of life, and exposure to tuberculosis infection. These non-reactors are therefore an ideal control group. About one-half of them had been negative to both first and second dose tuberculin test. The other half was negative to the first, but the second was not done. About two-thirds of them were re-tested with tuberculin within 3 years. Over 85 per cent usually become infected by tubercle bacilli in the course of training,

as shown by the change from negative to a positive tuberculin reaction. Periodic roentgenograms of these (originally) non-reactors revealed 34 cases of tuberculous lesions — 28 parenchymal and 6 pleurisy with effusion, an incidence of about 3.7 per cent. The result of the exposure on these non-reactors therefore establishes the fact that this exposure was sufficient to infect those susceptible to the disease.

OBSERVATION OF THE TUBERCULIN-POSITIVE REACTORS

Periodic roentgen examination of the 1,320 girls who had positive reactions upon enrollment revealed six lesions—5 parenchymal and 1 pleural effusion—an incidence of less than ½ per cent. Demonstrable lesions occurred 8 times as frequently among the originally tuberculin non-reactors as among the positive reactors.

CONCLUSION

Under the living conditions of student nurses, a positive tuberculin reaction may be considered an indication of immunity to re-infection through contact. There is no evidence to indicate any activation of old primary infection by new exposure. Tuberculin allergy and immunity to new infection are two biological phenomena which may be separated experimentally, but in man they exist together.

COMMENT

This conclusion implies no new principles in immunology. Syphilis and other diseases are known to exhibit similar immunological properties. For example, a 48 year old chauffeur gave a history of having had a chancre at the age of 18 which disappeared, leaving no visible scar. He thereafter lived an active life in good health, during which he had several negative physical examinations. Now, at the age of 48, he presents a gumma. We accept the fact that his infection remained latent 30 years, giving no physical signs and insuring immunity to any *new* infection with syphilis. We do not charge his gumma to superinfection or re-infection. We know that if his syphilis is completely cured he is again susceptible to new infection. The only immunological difference between latent syphilis and latent tuberculosis following primary infection is this: among syphilitics most will have serious disease in later life, whereas among persons harboring tubercle bacilli, a minority develop clinical disease. In both diseases primary infection confers immunity to new exogenous infection. It is important for the syphilitic to know of his infection in order that he may have treatment to rid him of the infecting organism. But in tuberculosis it is also important to know of a primary infection in order that he may have a roentgen chest examination, to determine if he has any disease, and that fear of infection may be allayed through new contact with tuberculosis in family, social, or occupational activities.

IMPLICATIONS

The following are practical implications:

Doctors, nurses, attendants, and students who are tuberculin-positive need not fear tuberculosis because of their work.

A tuberculosis patient is not a source of infection for adults of his family who are tuberculin-positive reactors.

In hospitals and sanatoria there is no evidence that tuberculous patients infect one another. An ex-patient may be employed by a tuberculous hospital with safety to himself as far as activating his own lesion or acquiring new infection is concerned. A program for the prevention of tuberculosis among nurses or any other group must start and also end with prevention of infection of tuberculin non-reactors.

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Hospital Records as a Source of Morbidity Statistics*

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HOSPITAL records over a 10 year period for 2,444 Baltimore families show a rising admission rate, and a distribution by age and cause that is very different from comparable data for total sickness and for deaths. Personal particulars for a study group of 9,479 persons in the Eastern Health District of Baltimore, Md., were available from information obtained in the National Health Survey of 1936.[6] This population was then traced in the name files of nine representative hospitals in or near the Eastern Health District to determine what hospitalization each individual had there experienced during the preceding years, 1926–1935 inclusive. This study technic combined the use of survey and hospital sources of information. The hospital data collected are unique in that they are for a living population of known size and characteristics; they may be analyzed by means of admission rates by sex, age, color, and diagnosis; they are based not on the statements of a member of the household, but upon the hospital records themselves; and they include a long-time experience in a group of hospitals offering some free and part-pay care. The rates obtained do not show the incidence of admissions, but are rather a historical description of the way a living population has gone to the hospital in the past.

The annual admission rate found was 32 per 1,000 population for the 10 year period 1926–1935. The rate for 1935 was 44 per 1,000. By using supplementary data to estimate admissions to hospitals other than the nine searched, and the proportion of deaths of Eastern Health District residents occurring in hospitals, it is possible to obtain an incidence rate of 63 per 1,000 population for 1935. This may be compared with a rate of 61 for the United States for 1935[5]; 62 obtained in a survey group of representative families in 18 states[1]; and 67 in a sickness survey now being made in Baltimore.[3]

The annual admission rates for the families studied indicate a marked upward trend with time as may be seen in Figure 1. This is substantiated by rates calculated from admissions as given in several reports.[5, 7, 2] Infants born in the hospital and ad-

* From the Division of Public Health Methods, National Institute of Health, in coöperation with the Department of Biostatistics, School of Hygiene and Public Health, The Johns Hopkins University (*paper No. 214* in the numbered series of the Department of Biostatistics), and the Baltimore City Health Department. Assistance in the collection of the data was furnished by the personnel of Works Progress Administration Official Projects Numbers 400 and 7,024.

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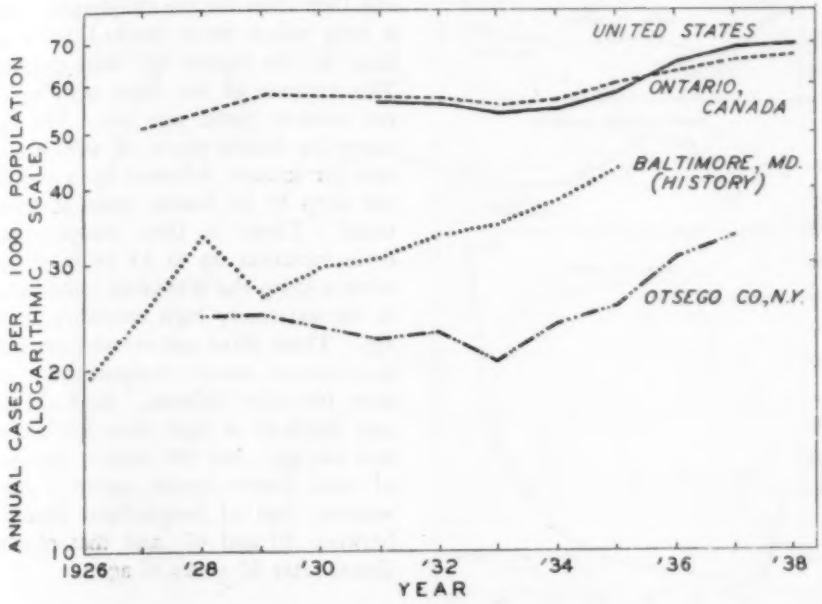

FIGURE 1—Annual hospital admissions per 1,000 population (excluding new-born and admissions to mental and tuberculosis hospitals)—United States, 1931–1938; Province of Ontario, Canada, 1927–1938; 2,444 living families in the Eastern Health District, Baltimore, in 9 hospitals, 1926–1935; resident discharges from Mary Imogene Bassett Hospital, Otsego County, New York, 1928–1937.

missions to mental and tuberculosis hospitals are excluded.

The trend of admissions per 1,000 population is strikingly similar for the United States and for the Province of Ontario, Canada. Both show some decline in the post-depression years, followed by a gradual increase in later years. The rates for Baltimore and for Otsego County, New York, are considerably lower and show more variation. Nevertheless, all of the curves agree in showing an unmistakable upward trend in hospitalization in recent years, an indication of the growing importance of and need for the study of hospitalized sickness.

The relative variation of hospital admission rates with age for white families from the Eastern Health District is shown, with comparable data, in Figure 2. In some respects the results of this hospital study were very similar to those obtained from a surveyed group of representative families in 18 states.[1, 4] Since figures for all illness were also available for the latter group, their total and hospitalized illness rates are shown in conjunction with the Eastern Health District data. The survey group of families in 18 states had, for the 12 month period of observation, 32,752 cases of sickness reported, of which 2,357 were hospitalized, but the deaths numbered only 295. Comparison with figures for the Death Registration States of 1929–1930 showed very similar death rates by age and diagnosis, so it was considered desirable to use the more representative data of the country as a whole. Because of the variation in magnitude of figures for total, hospitalized, and fatal illness, actual rates are not plotted. The ratio

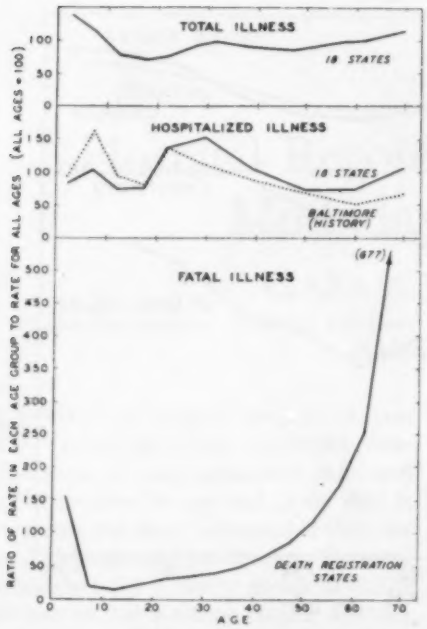

FIGURE 2—Relative variation with age in total, hospitalized and fatal cases of illness per 1,000 population—illness and hospital data from survey of 8,758 white families in 18 states, 1928–1931; hospital cases among 2,019 living white families in the Eastern Health District, Baltimore, in 8 hospitals, 1926–1935; mortality data for white population of Death Registration States, 1929–1930.

of the rate at each age to that for all ages is used to indicate relative increase and decrease.

Inspection of the age curves for total hospitalized and fatal illness shows large differences. Total morbidity rates are highest for young children, then decline consistently to a low for the age periods through 19 years. From 20 through 45 years of age there is a wave reaching its crest in the early 30's. After 45 the sickness rates show an uninterrupted increase but never reach as high a figure as that for the youngest age group. Hospitalized case rates are low for children under 5 years, have a marked peak at the early school ages, level off for the years 10 through 19, and then show for the childbearing ages a very much more marked incidence than do the figures for total sickness. The increase of the rates with age is not evident until age 60. The age curve for deaths starts off with a high rate for infancy followed by a consistent drop to its lowest rates at 10–14 years. There is then comparatively little variation up to 45 years of age, when a sharp rise is evident, culminating in the extremely high mortality of old age. These three age curves have little in common except comparatively low rates for older children. Both sickness and death show high rates for infancy and old age; but the highest incidence of total illness occurs under 5 years, whereas that of hospitalized illness is between 20 and 40, and that of fatal illness after 60 years of age.

HOSPITAL CASES WITH AND WITHOUT SURGERY

In Figure 3 admissions for causes relating immediately to delivery and the puerperal state are excluded. The historical study on residents of the Eastern Health District shows that the incidence of cases treated with surgery is greater at every age. The rates for white males and females of similar ages are about the same. The high childhood peak is very striking for the surgical cases, and the nonsurgical cases show, in general, less variation with age. Both show an increase for the oldest age group. Comparable data from a group of surveyed families in 18 states show similar variation with age and an excess of surgical cases.

FREQUENCY OF CAUSES OF ILLNESS

The five most frequent causes of all sickness, of hospitalization, and of death are notably different. Figures for total and hospitalized illness can be obtained from Costs of Medical Care studies and, for deaths, from the mortality statistics of the U. S. Death

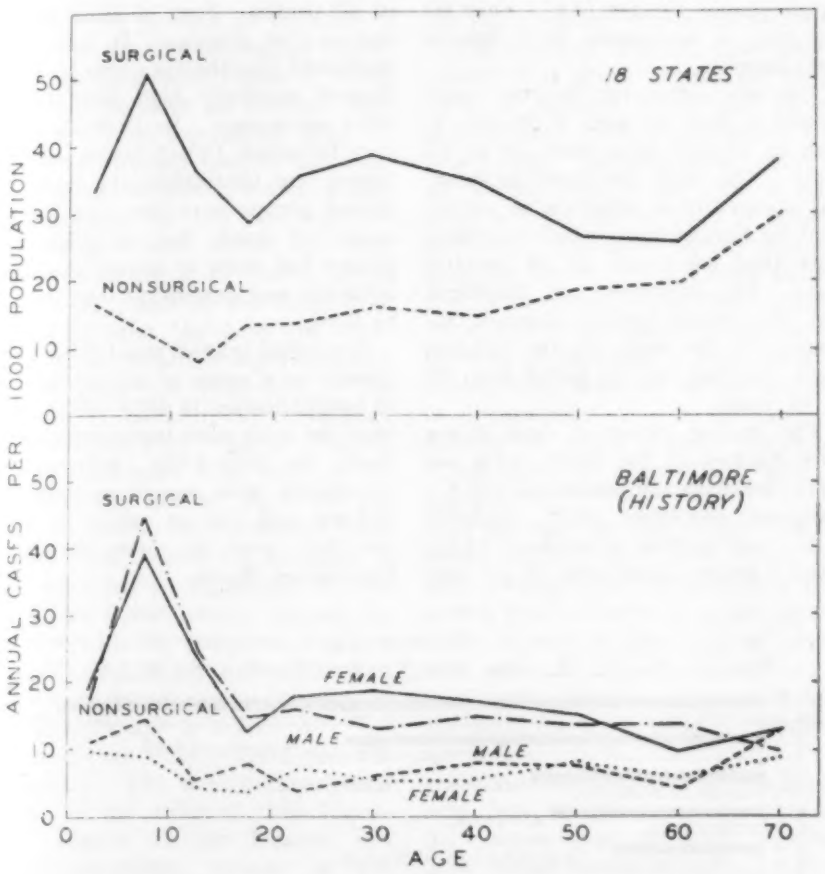

FIGURE 3—Annual admissions (excluding puerperal cases) with and without surgery, per 1,000 population, by age—8,758 white families in 18 states, 1928–1931 and 2,019 living white families in the Eastern Health District, Baltimore, in 8 hospitals, 1926–1935.

Registration States in 1929 and 1930.

The relatively small variation of the total sickness curve with age ties in with the diagnoses indicated as the five most frequent causes of morbidity. They were colds and bronchitis (18.2 per cent of the total number); influenza, grippe, and pneumonia (10.9); accidental injuries (8.8); "sore throat" (6.0); and digestive disorders (4.7). Together, they caused about one-half of all sickness. Each of these groups of diseases attacks persons of all ages with somewhat similar frequency. Even though the survey technic may tend to minimize the importance of minor disorders, colds and bronchitis together caused nearly one-fifth of all reported illness. The outstanding place of respiratory diseases is evident, with three of the five leading causes coming under this classification.

The most frequent causes of hospitalization were tonsillectomy (26.5 per cent); all deliveries (15.5); accidental injuries (8.7); appendicitis (8.0); and

female genital diseases (4.6). Over 60 per cent of admissions were due to these causes.

The age curve for hospital cases showed a peak for ages 5 through 9, with its highest rates from 20 to 40 years. The high childhood incidence was apparently a reflection of admissions for tonsillectomy, which constitute more than one-fourth of all hospital cases. The importance of childbirth and the female genital diseases accounts for the wave in the sickness curve, covering the age period from 20 to 40 years.

The leading causes of fatal illness were diseases of the heart (18.8 per cent); influenza and pneumonia (10.4); malignant neoplasms (9.2); nephritis (7.8); and cerebral hemorrhage (7.5), which together caused over 50 per cent of all deaths. Four of these five are degenerative diseases. It will be remembered that the age curve for deaths showed extremely high rates for the older age groups. In 1938, the latest year for which United States mortality figures are obtainable, the same five disease groups were the most frequent causes of death, but malignant neoplasms had risen to second place, and influenza and pneumonia had dropped to third.

Accidental injuries stood third in frequency as a cause of all sickness and of hospitalization in 1928–1931. They were the sixth most important cause of death, for 1929–1930. Influenza and pneumonia were second as causes of sickness and also as causes of death, but they were far down the list of hospitalized illness.

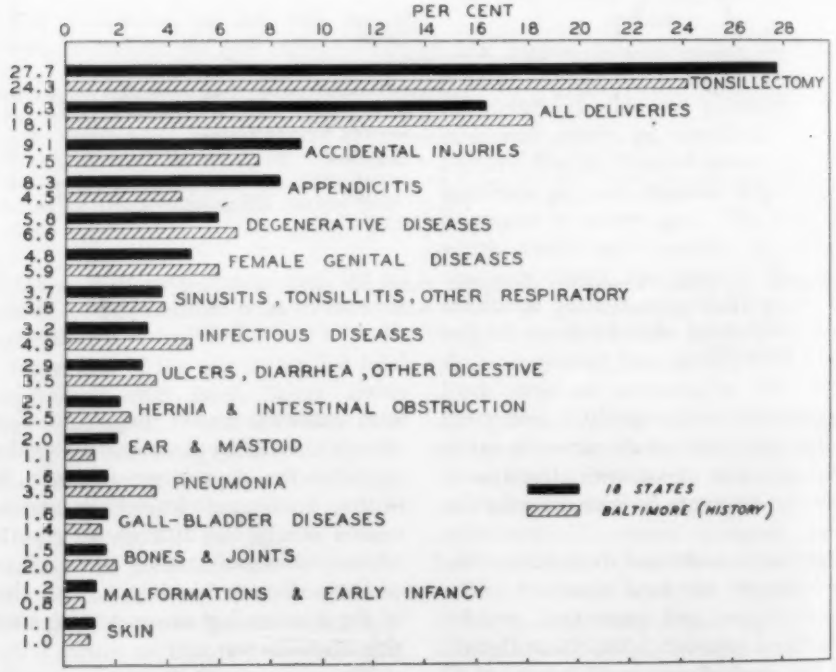

FIGURE 4—Percentage of all hospital cases with specified diagnosis—8,758 white families in 18 states, 1928–1931 and 2,444 living white and Negro families in the Eastern Health District, Baltimore, 1926–1935.

The relative position of maladies in addition to the five of leading importance may be seen in Figure 4, which shows the diagnoses on hospital cases as obtained from unpublished data for a group of surveyed families and from the Eastern Health District study. These come in the one case from reports obtained from urban and rural white families for a 12 month period in 1928–1931, and in the other from hospital histories found as the experience of an urban, living population of both races for 1926–1935. The agreement is, however, rather striking.

Tuberculosis and mental diseases have been excluded from both as the Eastern Health District study did not include persons in institutions for these diseases. The causes are arranged in order according to magnitude for the data of the former study. It may be seen that with the exception of a few differences such as for appendicitis and the group of female genital diseases, no great disagreement is noted.

Most of the disease titles are self explanatory. The degenerative group includes in the order of their importance, diseases of the kidneys and bladder, neoplasms, diseases of the heart, diabetes, arteriosclerosis and cerebral hemorrhage. The infectious group includes the common communicable diseases of childhood, together with the venereal diseases and local infections. Scarlet fever and diphtheria were considerably more numerous than others in this group.

SUMMARY

For many years most of the available statistical data about illness were obtained from the study of mortality. Hospitalized illness also represents an extremely important source of morbidity data. With growing interest in this field it is timely to compare hospital cases with total sickness, as such consideration may serve to avoid errors in the interpretation of hospital statistics.

The Costs of Medical Care studies showed that about 7 per cent of all cases of reported illness and 12 per cent of cases of disabling illness were hospitalized. The proportion varied, for all illness, from 5 per cent in rural areas to 9 per cent in cities of 100,000 and over. The latest figures available from the Bureau of the Census showed that in the United States approximately 35 per cent of all deaths (1936) and 48 per cent of all births (1938) occurred in hospitals. Analysis of hospital cases is of particular value in the study of diseases for which a large proportion of all cases are hospitalized, such as appendicitis.

In general, the age distributions of total, hospital, and fatal illness are very different. In the data here presented, total sickness rates are highest under 5 years of age; hospital admission rates are highest for children 5 to 10, and adults 20 to 40 years of age; and death rates are highest in the oldest age groups.

Neither hospitalization nor death records show the primary importance of the diseases most frequently reported to be responsible for all sickness. Hospital admission rates are highest for tonsillectomies and deliveries. Heart and other degenerative diseases are leading causes of death. Colds and other affections of the respiratory tract are the most frequent causes of all sickness.

Much remains to be learned about all types of sickness. Although hospital data differ from total illness and also from mortality, they will undoubtedly provide an increasingly valuable and important source of morbidity records.

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Mortality Statistics and the Physician

An Argument for Classifying Deaths According to Informed Medical Judgment

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SCIENCE, in the words of Thomas Huxley, is organized common sense. Since the common sense of yesterday is often not the common sense of today, a scientific technic based on the experience of another age may represent only the inertia of organization and sterile regard for formal consistency. Such, in the opinion of the writer, is our system of selecting the primary cause of death. The fundamental purpose of mortality statistics, aside from their purely "news" value, is to furnish public health authorities with factual information about conditions which if not controlled or prevented may lead to premature death. The basic requirements which these statistics must satisfy are: uniformity of nomenclature and assignment of each death to a single cause. The former has been achieved through the universal acceptance of the *International List of Causes of Death*. The selection of the cause of death has been and still is governed by arbitrary rules which prescribe the order of precedence in any combination of causes.

At the end of the last century national and even accurate state statistics were practically nonexistent and the formulation of a procedure for the statistical treatment of jointly reported causes of death of necessity had as its main object the comparability of results, the "absolute correctness in the assignment of each individual cause of death" being only an incidental consideration.[1] In those days, when people in some sections of this country still died from "drinking cold water" or from "mortification," it was not only impossible to admit to learned fellowship all of the terms used in describing disease, but to accept in every instance the certifying physician's statement of the cause to which a death should be ascribed. Stress was therefore rightly placed upon completeness of medical certification and consistency in the selection of the primary cause, secured by means of arbitrary rules. In the course of time, the method, obviously a temporary expedient, assumed the cloak of permanency.

The registration practice of this country counts among its noteworthy achievements the almost complete elimination of the formerly large class of "unspecified or ill-defined causes of death," with the natural implication that the accuracy of mortality statistics is inversely related to the size of this class. The medical certificate, in effect, asks the physician: What disease was responsible for the death of your

patient? According to the latest figures the physicians of New York State know the exact answer in 99.95 per cent of all cases. Even Nazi referendums admit greater fallibility! Insistence upon definite statements when circumstances make them questionable introduces an unfortunate element of doubt in all mortality statistics, as can be readily discovered by frank converse with any practising physician. Only the other day one of my colleagues (a truthful fellow!) told me that, at the beginning of his internship in a famous hospital, several death certificates were returned to him by the local registration office because he had entered on one "starvation" as the cause of death (the comment being that no one in the city X ever dies from starvation), while the causes on the others were "unknown or ill-defined." Consultation with an older member of the staff resolved his perplexity, and whenever, during the rest of his term, he found it impossible to make a clear-cut diagnosis, he cheerfully entered bronchopneumonia as the cause of death.

As Dr. Sellers put it in his excellent paper, "Better to have ten times the number of deaths classed to 'cause unknown or ill-defined' than to have them included under headings where they very likely do not belong at all."[2]

Paralleling the laudable emphasis on uniform terminology, physicians have been encouraged to supply as many details as possible. As a consequence, the number of multiple certifications has been steadily increasing. For example, twenty years ago in the State of New York (exclusive of New York City) only 40 per cent of the death certificates showed two or more causes; in 1925 this proportion rose to 49 per cent; in 1934, to 69 per cent; while at present it is somewhat in excess of 75 per cent. Is this trend truly a gain? After all, certificates of death are not clinical records and details are of value only in so far as they permit of a reasonable allocation of each death to a single cause. A study of mortality records, each representing a complex of morbid conditions, is altogether outside the scope and facilities of a state registration office, while for scientific research these records are not sufficiently informative.

Under the statistical rules which govern the treatment of joint causes, the determining consideration is usually the company in which a given cause appears and not necessarily its etiological relation to the fatal issue. Thus, when tuberculosis is mentioned in conjunction with any form of heart disease, we have a tuberculosis death, but when the companion condition is syphilis the death is designated by the latter term. As a result the recorded mortality from diseases which are given statistical preference overstates in varying degree the loss of life caused by them. The converse is, of course, true of diseases relegated to "contributory" standing. And yet, such is the force of printed numbers that even "one of the best known practitioners in the art of translating science into the common tongue," in discussing the intensification of bacterial invasion which comes with war, is led to make this naïve statement: "In 1918 . . . although the United States was on the other side of the ocean from the battlefields, its tuberculosis death rate rose by one and one-third per cent."[3] One does not need a world war to raise the tuberculosis death rate by one-seventy-fifth: a minor revision in the statistical rules, so minor as not to warrant even a printed notice, can accomplish that much and a great deal more. Just because so many good people have almost religious faith in the validity of official statistics, the stress must now be placed on as close an approach to "absolute correctness" as the state of medical knowledge makes possible.

The substitution of the physician's

judgment for arbitrary statistical rules will, of course, affect the comparability of the figures. But to continue a basically unsound process merely for the sake of technical comparability would be, to put it mildly, decidedly illogical. It was this common sense attitude that led England and Wales in 1927, and Canada in 1935, to introduce a new form of medical certificate which called for the immediate cause and for "morbid conditions, if any, giving rise to the immediate cause (stated in order proceeding backwards from immediate cause)." This innovation was accompanied by a sustained educational program in the medical schools and among the medical profession, with the result that in England the arbitrary statistical rules were to be discontinued in the present year, while in Canada "the achievement of the objective of being able to accept the certifier's viewpoint instead of selection by rule" is an imminent possibility.

The experience of these two countries influenced the adoption of similar phraseology in the 1939 revision of the standard death certificate used in the United States. Here the physician is not only asked to state the immediate cause of death, antecedent causes in reverse order, and "other conditions," but to underline that cause to which he believes the death should be charged statistically. The new form has been in use in the State of New York, exclusive of New York City, since January, 1940, and it now seems both pertinent and timely to ascertain to what extent it has elicited the desired information, and to measure the effect upon the mortality statistics of the differences between the opinions of the certifying physicians and the statistical rules. For this purpose we have examined all of the certificates for the month of January, 1940, and a sample of 500 certificates for January, 1941.

The certificates filed in January, 1940, totalled 6,849; their distribution, according to the number of causes and the physician's indicated choice, is as follows:

All certificates	6,849
Certificates showing one cause	1,630
Certificates showing two or more causes	5,219
No choice indicated by physician	3,193
Choice indicated by physician	2,026
Choice in agreement with statistical rules	1,149
Choice in disagreement with statistical rules	877

The physicians indicated their choice on less than 40 per cent of the certificates having two or more causes; on the other hand, in a considerable proportion of certificates having only one cause, and therefore permitting of no choice, the single cause was underlined. An examination of the certificates filed a year later, the results of which will be presented in detail in another section of this paper, has strengthened the impression conveyed by the figures in the preceding table that underlining is an unsatisfactory means for registering the judgment of the certifying physician. Here one should be guided by the logical order of medical certification and not depend on a mechanical stroke of a pen or typewriter, which may inadvertently be omitted or put in the wrong place.

Of the 2,026 cases in which a choice of cause was indicated, there was agreement with the statistical rules in 1,149 and disagreement in 877 cases. It is the latter group that is of immediate interest. In a minority of this group the disagreement was apparently due to the physician's lack of familiarity with the rudiments of certification, namely, that whenever possible a death should be assigned to the cause which was first in order. Typical is the combination of whooping cough and pneumonia, with the latter indicated as the cause of death. A great majority of the cases represented, however, basic disagree-

ment between medical judgment and the prevailing practice. And, by the way, the picture was strikingly the same among deaths which occurred in hospitals and deaths which occurred in private dwellings.

Since in most of the multiple certifications the physicians failed to indicate their preference, it is impossible to tabulate all of the deaths for the month according to the statistical rules and the judgment of the certifying physicians. There would be little value in an arbitrary distribution of the certificates on which no choice was indicated. The comparison will, therefore, be made only for those certificates on which a choice could be and was specified.

If the tabulation were based on the physician's indicated choice there would have been a decrease in the recorded mortality from tuberculosis, syphilis, cancer, diabetes, diseases of the heart (except coronary arteries and angina pectoris), ulcer of the stomach or duodenum, and nephritis; and an increase in the other causes listed in the table. It is interesting to add that there would be essentially no difference (only 1 per cent) in the combined mortality from intracranial lesions, diseases of the heart and arteries, and chronic nephritis, the shifts occurring within the confines of this large class. The disagreement in the assignment to some of the other causes is decidedly instructive and deserves detailed presentation.

Tuberculosis, all forms—The number of deaths ascribed by the statistical rules to tuberculosis, all forms, was 239: in 119 certificates tuberculosis was the only cause given, in 120 it was one of two or more causes. The physicians indicated their preference in 57 of these, agreeing with the statistical assignment in 44 cases. In the remaining 13 the physicians chose the following:

Diseases of the heart	6
Diseases of the arteries	2
Diabetes	2
Leukemia	1
Ulcer of the stomach	1
An "ill-defined" cause	1

On the other hand, 2 deaths which the statistical rules assigned to syphilis were ascribed by the physicians to tuberculosis.

Cancer, all forms—The number of deaths ascribed by the statistical rules to cancer, all forms, was 717: in 223 certificates cancer was the only cause,

TABLE 1

Tabulation of Causes of Death According to Statistical Rules and Opinion of Certifying Physicians

	Statistical Rules	*Opinion of Physicians*
Tuberculosis, all forms	57	46
Syphilis	30	13
Cancer, all forms	189	159
Diabetes	75	20
Intracranial lesions of vascular origin	230	294
Diseases of the heart	790	715
Chronic myocarditis	489	315
Diseases of the coronary arteries and angina pectoris	128	220
Diseases of the arteries	45	188
Arteriosclerosis	44	179
Pneumonia, all forms	110	161
Ulcer of the stomach or duodenum	14	9
Hemorrhagic infarction, thrombosis, edema, and chronic congestion of the lungs	1	53
Nephritis, chronic and unspecified	208	87
Senility	0	8

in 494 it was one of two or more causes. The physicians indicated their preference in 189, agreeing with the statistical assignment in 158 cases. In the remaining 31, the physicians chose the following:

Pulmonary tuberculosis	1
Intracranial lesions of vascular origin	2
Diseases of the heart	10
Arteriosclerosis	3
Nephritis, unspecified	3
An "ill-defined" cause	3
Other causes	9

In no case did a physician assign a death to cancer when the statistical rules called for an assignment to a different condition.

Diabetes—The number of deaths ascribed to diabetes by the statistical rules was 211: in 19 certificates, diabetes was the sole cause; in 192 it was one of two or more causes. The physicians expressed their preference in 75 certificates, agreeing with the statistical rules in only 18 cases. The rest were ascribed by the physicians to the following:

Diseases of the heart	26
Pneumonia, all forms	8
Cerebral hemorrhage	7
Arteriosclerosis	4
Nephritis, chronic and unspecified	6
Pulmonary edema or embolism	3
An "ill-defined" cause	2
A disease of the ear	1

There were only two additions to the diabetes deaths which the statistical rules ascribed to pulmonary tuberculosis. Therefore, if the physician's judgment were followed, deaths from diabetes would have numbered only 20 as compared with the official total of 75.

Pneumonia, all forms—The number of deaths ascribed by the statistical rules to pneumonia, all forms, was 354: in 105 certificates, pneumonia was the sole cause given; in 249 it was one of two or more causes. The physicians expressed their preference by underlining the cause on 110 of the certificates: in 80 cases they agreed with the statistical assignment, in 30 they chose the following:

Arteriosclerosis	9
Diseases of the heart	5
Abscess of the lung	2
Acute nephritis	2
Other causes	12

On the other hand, the physicians assigned to pneumonia 81 deaths which the rules of statistical practice classified as follows:

Diseases of the heart	28
Diabetes	8
General paralysis of the insane	5
Arteriosclerotic kidney	4
Accidental fall	5
Influenza with respiratory conditions	5
Other causes	26

Thus, if the tabulation of the deaths were based on the judgment of the physicians, the group of 110 pneumonia deaths would have been increased to 161.

Senility—The physicians ascribed 8 deaths to senility which were assigned by the statistical rules as follows: 2 to chronic myocarditis, and 1 each to non-malignant tumors of female genital organs; myocarditis, unspecified; arteriosclerosis; bronchopneumonia; a skin disease; and accidental fall.

In order to measure the effect of a year's experience, the certificates for January, 1941, were examined and it was then discovered that the number of cases in which the preferred cause was underlined had decreased to such an extent as to make a comparison on this basis impracticable. It was decided, therefore, to study the sequence in which the causes were entered on a sample of 500 certificates and to assume that the last condition set down by the physician represented his choice of cause to which the death should be assigned.

The broad results of this examination follow:

Total number of certificates	500
Certificates with one cause	130
Certificates with two or more causes	370
Physician's choice in agreement with statistical rules	199
Physician's choice in disagreement with statistical rules	171

In the last group the entries made by the certifying physicians appeared in logical order in 105 cases, while the assignment according to the statistical rules was as follows:

Immediate cause	64
Cause, other than last	11
"Other conditions"	26
Condition for which operation was performed	4

In 66 certificates the statements were without any logical order. Here are two examples: bronchopneumonia due to influenza, due to partial coronary occlusion; and coronary thrombosis, due to hypertension, due to arteriosclerosis, due to diabetes.

SUMMARY

A study of the nearly seven thousand death certificates filed in New York State (exclusive of New York City) in January, 1940, and of a sample of 500 certificates filed in January, 1941, indicates that:

1. It is impracticable to secure an expression of the physician's judgment as to the cause of death by means of underlining.

2. There is considerable divergence between the statistical treatment of joint causes and medical opinion as expressed by underlining, or implied in a logical arrangement of the causes of death. This divergence is particularly striking for deaths assigned to pneumonia and diabetes.

3. The findings are in general agreement with those obtained in England and Wales and in Canada, where the phrasing of the medical certification is similar to that on the standard form used in this country.

4. In a considerable proportion of cases the certifying physicians apparently chose an intermediary or terminal condition as the cause of death, or listed the causes in altogether illogical sequence.

CONCLUSIONS

The writer is in full agreement with the procedure initiated some fifteen years ago in England and Wales and introduced several years ago in Canada, which has as its ultimate object the substitution of the judgment of the certifying physician for arbitrary statistical rules. The experience of these countries has shown that such a substitution can be made only when every practising physician fully understands what facts he is expected to furnish to the statistical office and in what order they must be presented so that the classification of a death may truly represent his deliberate judgment. At present the physician is inclined to give little thought to a multiple certification because he knows that arbitrary rules and not his professional opinion will determine the allocation as to cause.

As a first step toward more accurate official mortality statistics, provision should be made in all medical schools for the instruction of students in concise, adequate, and orderly statement of causes of death; and departments of health, in coöperation with medical organizations, should impress the basic principles of medical certification upon the physicians already in practice.

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Nursing Care of the Sick as a Part of Complete Nursing Service in Rural Areas*

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IN any large city of our country and in many of the small cities some kind of skilled nursing care is available in home or hospital to every person sick enough to need it. In rural communities the situation is very different. Hospitals may be so far away that bad weather and road conditions make hospitalization impossible or inadvisable except in cases of extreme emergency. Private duty nurses frequently cannot be secured and rural public health nurses who do bedside nursing are comparatively few.

As a rural public health nurse often serves from 10,000 to 20,000 people scattered over a wide area, it seems unlikely that bedside nursing on an extensive scale can be undertaken until more nurses are provided, but even now bedside care for teaching and demonstrative purposes could be effectively employed to a much greater extent.

In her recent book, *The Public Health Nurse and Her Patient*,[1] Ruth Gilbert makes the following statement about bedside nursing:

> No one is thinking of bedside nursing now in the terms in which he thought of it some years ago: it is now bedside nursing plus. It has rolled up like a snowball until it includes everything the nurse knows and all her skill. Therefore, bedside nursing no longer need be rejected by those who are interested in teaching and in prevention of sickness on the ground that it is a mere picking up of the pieces. People still become ill in spite of the efforts of public health to combat this state of affairs. Faced with this reality situation, many public health nurses are reëmphasizing that it is their job to nurse the sick with added skill and understanding as well as to seek to prevent illness. . . . Bedside nursing gives the public health nurse, with her interest in preventing disease and in fostering health, a welcome in the patient's home because the patient and the family need her help.

In an effort to find out something about bedside service being given in rural areas, the speaker secured from the National Organization for Public Health Nursing a list of rural health agencies that had indicated in a review study made in 1938 that they were doing some bedside nursing, and wrote to these agencies for further information. The response was excellent. From a total of 25 letters sent out, 22 replies were received. These came from 16 different states. In practically all the agencies, the public health nursing service is part of the program of a

* Read at a Joint Session of the Michigan State Organization for Public Health Nursing and the Public Health Nursing Section of the American Public Health Association at the Sixty-ninth Annual Meeting in Detroit, Mich., October 11, 1940.

county or district health unit. Four of the agencies state that they do no bedside service. The following are some of the results shown from a study of the other 18.

Twelve of the 18 agencies are supported entirely by official funds, while 6 receive support from some private as well as official funds. The ratio of nurses to population varies from one nurse to 2,300 people and one nurse to 2,500 people in two of the agencies partially supported by private funds, to one nurse to 16,000 people in three of the county services. The average ratio for the 16 agencies for which this information is recorded is one nurse to nearly 9,400 people.

Only one of the agencies is giving bedside care as needed for all types of cases, including delivery service. In this one there has been an affiliation of a health district and a visiting nurse association. A second agency is giving all types of bedside care except home delivery service. These two agencies are both partially supported by private funds. They are the agencies with one nurse to 2,300 and 2,500 population respectively. Bedside visits comprise 27 per cent of the total visits of the first, and 21 per cent of the total visits of the second. Both agencies have a fee for bedside nursing service.

With the exception of these two agencies, all limit their bedside nursing service entirely or for the most part to demonstrations for teaching purposes and to emergencies. Conditions mentioned for which bedside care or demonstrations are given include cases of communicable disease, including tuberculosis and pneumonia, maternal and infant care, dressings, and cancer. Several agencies state that care is given mostly to indigent and low income groups, but the majority do not make this stipulation. Seven of the agencies make some provision for answering emergency calls on Sundays and holidays. None of the agencies, supported entirely by official funds, have a routine fee for bedside service, though in one agency collection of a fee is permissible. The proportion of bedside visits as reported by eight agencies ranges from 1 to 21 per cent of the total visits. The average for all eight agencies is 11 per cent. All the agencies for which the percentage of visits is not recorded give bedside service for demonstration and emergency purposes only, and some state that this service is very limited, so it is assumed that the proportion of bedside visits for this group is much lower than for the group for which it is recorded.

The agencies were asked if other community resources for bedside nursing were utilized, but there were only 6 replies to this question. Resources mentioned were graduate and practical nurses, nursing service of the Metropolitan and John Hancock Life Insurance Companies, home hygiene students, and housekeeping aids.

The study indicates that bedside care, even for demonstration purposes, is the exception rather than the rule for most rural areas of the country. However, there have been some encouraging developments during the last few years.

In New York, where the State Department of Health is advocating bedside nursing service by all nurses, at least on a demonstration basis, reports from field nurses throughout the counties of the state indicate that there is a steady increase in the per cent of bedside nursing visits. An analysis of nursing visits for eight districts of the state was made in 1939. The reports included counties where only one public health nurse was employed, as well as those employing as many as 5. It was found that in a total of nearly 80,000 visits, bedside care was given in almost 9,000 visits, or 11 per cent. This represented an average of 13 bedside visits for each month of nursing service rendered in the 8 districts.

Aided by social security funds a number of states have set up maternity demonstrations in one or more counties or districts. These demonstrations include home delivery nursing service and some bedside care for postpartum and new-born patients. To be sure, this service is available to only a very small proportion of the 86 out of every 100 farm women who are delivered at home,[2] but it is a small step in the right direction.

The affiliation of private and official agencies for the provision of a generalized nursing service including bedside care is meeting rural nursing needs in a few places, especially in suburban counties or in other fairly thickly populated counties where some provision for bedside service had been made for parts or all of the area by private organizations. However, in the majority of rural counties there are no private public health nursing agencies with which the official agency can affiliate.

In one county a volunteer agency budgeted funds to add personnel to the staff of the official agency so that a program of bedside care could be developed. To date, however, the official agency has not been able to arrange for the program, and the funds of the volunteer group are lying idle.

Public health nurses in the rural areas are feeling the need for bedside care and they are showing more appreciation of the value of teaching through demonstration. Teaching by demonstration takes time, but nurses are realizing that even though the total visit count may be smaller, the end results may be far greater. A number of nurses who sent information about their programs made comments on the need and desirability of bedside care and demonstration.

One supervising nurse for a county in a southern state wrote:

> We try to stress bedside care for purposes of demonstration and in emergencies. Though many times we see the case but once during an acute illness, much good can be accomplished by one thorough demonstration as to what good bedside care really means. It is obviously impossible for a staff of 6 nurses to do a bedside nursing care program for a population of 60,000, but we try to do as much as we can for the following reasons:
>
> It helps to sell the service to the community. . . . It is the bedside care that unloosens the purse strings of the city and county finance committees.
>
> Our work is primarily with people of few educational advantages and, with this group, teaching by demonstration is more effective than the spoken or printed word.
>
> Also, with this same group, there is much more respect for the nurse who has demonstrated that she can work with her hands and that she can do things as well as talk.

The need is apparent. How the problem is to be met, how sufficient nurses are to be provided to give even a minimum of bedside service in rural areas, is a question; but if the people of a community realize the value of such a service and want it sufficiently, some way may be found to meet the need, whether with public or private funds.

At the A.P.H.A. convention last year Dr. Godfrey, Health Commissioner of New York State, in his paper,[3] "Dynamic Relationships," said:

> There are still some differences of opinion regarding the method of providing a visiting bedside nursing service for all the people in every hamlet of the state. There seems to be an acceptance by the public that they need the service. If they endorse it to the extent of providing funds for that purpose, then the service becomes a proper one to the public agency.

Dr. Parran, Surgeon General of the U. S. Public Health Service, also endorses the use of public funds for bedside nursing in rural areas. Three years ago this month, speaking at the Silver Jubilee Dinner of the National Organization for Public Health Nursing, he said [4]:

> It seems to me that a next and needed step is for health departments to provide community nurses who will have responsibility both for prevention and for bedside care as

needed. I say health departments because the present visiting nurse organizations are for the great part confined to cities. In rural areas I see no way by which these needed services can be given except through public funds.

Some cities have been making studies of all their nursing resources with the purpose of coördinating existing facilities and rendering better and more adequate service to the public. A few cities have organized community nursing councils. Would it not be advantageous for lay and professional groups in rural communities to get together to study their nursing needs and resources? They might then develop plans for making the best possible use of all existing resources and for adding to these as may be necessary to the end that at least a minimum of skilled nursing care shall be available in time of need to every person in the community.

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MEMBERSHIP ROLL CALL—NOVEMBER 11–30, 1941

Appraisal of Nutritional Status

Introductory Remarks

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DURING the last forty years attempts have been made to appraise nutritional status by either or both of two methods: clinical examination and physical measurement. The results obtained have been difficult of interpretation or actually untrustworthy or misleading so that the methods have come to be regarded as lacking in precision. As no satisfactory alternative methods were then available, these old methods were retained for a time, but they have become more and more discredited.

In the meantime, studies on the nutritional state of the body have shown that the earliest stage of deficiency diseases is represented by the latent or subclinical stage, and convincing evidence has been adduced that much of the unsatisfactory nutrition in the population is in the latent form.

Owing to the acknowledged shortcomings of the older methods of appraisal (clinical examination and physical measurement), we are not yet in a position to describe the exact size, nature, and distribution of the problem of nutrition in this country. Until it is thus defined, neither therapy nor education can be applied most effectively. But it is clear that the old methods, which have proved to be so misleading and unsatisfactory, hold no promise of usefulness for this purpose.

In recent years, numerous chemical and physiological tests have been developed which have demonstrated their value in the detection of the latent state of the several deficiency diseases. A large number of these methods are being put to the test in four independent investigations. The use of such a large number of tests may seem exaggerated, but it must be remembered that only by the simultaneous application of these various tests on the same individuals can there be a basis for judgment in selecting the significant and necessary minimum. Their use in public health work must be conditioned by the following practical questions:

To what extent can the detection of cases of malnutrition be simplified?

How few tests will give a reliable indication of nutritional status?

Nevertheless, it is becoming more and more apparent that the appraisal of nutrition is not to be accomplished by one or two simple tests.

There are four projects under way in this country, in which attempts are being made to appraise nutritional status by some or all of these newer methods. Of these four projects we have reports herewith from three.

Last year a study was begun among a rural group in Tennessee. It is being conducted by the School of Medicine, Vanderbilt University, under the auspices of The Rockefeller Foundation. Dr. John B. Youmans, of this project,

will present a paper on "An Assessment of the Nutrition of a Rural Population in Tennessee."

In 1935, as part of a long-time program of human nutrition research, the Division of Home Economics Research of The Pennsylvania State College instituted an investigation of the nutritional status of children of preschool age in relation to various dietary practices.

As the number of tests was gradually increased and a mobile unit was organized, examinations were conducted in widely separated and different kinds of Pennsylvania communities, both rural and urban. Dr. Pauline Beery Mack, of this project, will speak on "Mass Studies on Human Nutrition in Pennsylvania."

In 1938, the Division of Child Hygiene of the U. S. Public Health Service, the Departments of Preventive Medicine and Pediatrics of the Cornell University Medical College, the New York City Department of Health, and the Milbank Memorial Fund joined in a comprehensive study on a coöperative basis. A series of twenty tests were applied to approximately 2,500 students of the Seward Park High School on the Lower East Side of New York City. The next four papers to be presented are from this project.

Dark Adaptation Characteristics of Private School Children Measured with the Adaptometer*†

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AN "elevated" visual threshold during dark adaptation, or an apparent inability to perceive dim light, has frequently been interpreted as a sign of vitamin A deficiency. In this connection, the term "elevated" threshold should be limited in its application to a condition which cannot be explained by such primary pathologies as opacity of the cornea, lesions of the retina, or other ocular disease, or by congenital factors. The problem, therefore, of defining "elevated" threshold as a part of the complex or residual of other eye conditions becomes complicated by a number of difficulties among which is establishing "a standard of normality" of thresholds. By testing many persons who are healthy in all obvious respects, one may arrive at a determination of the range of usual variation of visual threshold. Furthermore, in the course of such testing there will be found certain individuals whose visual thresholds seem unusually high in relation to those of their supposedly comparable associates. Such individuals may be designated as having "elevated" thresholds within the meaning of the term as used here and such individuals are, therefore, at least suspect as nutritional deficiency cases.

This method of defining "elevated" threshold is especially useful in school and community surveys in which the majority of subjects are tested only once.

The present report describes the dark adaptation of 175 apparently healthy high school children. The test results for this group are of interest as a reference relative to which other individual or group performance can be appraised.

MATERIALS AND METHODS

The sample—The children examined, ranging in age from 12 to 19 years, came largely from Jewish families of relatively high-income level and were all in attendance at a private day school in a suburban locality near New York City. However, the sample may not

* From a coöperative investigation by the U. S. Public Health Service, Division of Public Health Methods; the Cornell University Medical College, Department of Public Health and Preventive Medicine and Department of Pediatrics; the Milbank Memorial Fund; and the New York City Department of Health.

The coöperating agencies have been assisted in carrying out this investigation by the Work Projects Administration for the City of New York, Official Project No. 65-1-97-21, W. P. 24, "Medical Evaluation of Nutritional Status."

† Based upon a report read before the Food and Nutrition Section of the American Public Health Association at the Sixty-ninth Annual Meeting in Detroit, Mich., October 8, 1940.

represent a well nourished group in the strict sense, since there were in it individuals whose nutritional status was no doubt less than optimal, as related either to vitamin A or other nutritive elements. Preliminary analysis of the diet histories of 136 children from the same population indicated that the diets of approximately 40 per cent of the group provided less than 5,000 international units of vitamin A per day.[1] Roughly, 18 per cent of the same group were receiving smaller daily allowances of vitamin C and calcium than are commonly recommended. However, their diets appeared to be more satisfactory with respect to adequacy of vitamin B_1, riboflavin, protein, and, probably, iron.

No gross opacities or other abnormalities interfering with the transmission of light to the retina were reported in the medical examinations by the physician. Errors of refraction were not measured and have not been corrected for the purpose of the dark adaptation test.

Apparatus and test procedures—The adaptometer which has been described in detail by Hecht and Shlaer,[2] is a device with which the operator exposes one of a subject's eyes to a light of standardized brightness (preadaptation) and measures the dark adaptation of that eye by determining, at specified intervals of time, the threshold of perception of light stimuli of known intensity. In the course of the present study it was found on preliminary use of three adaptometers bought in the commercial market that results were not mutually comparable and that considerable recalibration of several units of the instrument would be necessary. Accordingly, the Corning 511 violet filters, the glass wedges and "neutral" filters were checked by the U. S. Bureau of Standards. To obviate difficulties of calibration of the light source, the Macbeth illuminometer was used. The study of the instruments was reported in an earlier paper.[3]

It might be mentioned in passing that, as a result of the review of the instruments it became apparent that uniformity of preadaptation brightness was quite essential if comparisons are to be made of thresholds determined before 20 minutes in the dark. In the present study preadaptation brightness was equalized through adjustment of operating current by means of a manually controlled rheostat and voltage regulator assembly.

Each subject in the study was preadapted to approximately 1,060 millilamberts (12.024 log units) for 3 minutes, after which dark adaptation observations were made at 2 to 3 minute intervals during 30 to 35 minutes. Light adapting and test fields, 35° and 3° respectively in diameter, were viewed 7 degrees nasally, using the right eye. The test light was exposed in flashes lasting 0.2 second. During threshold determinations the Corning 511 violet filter, transmitting wave lengths below 460 millimicrons, was used. The tests were made by four technicians using the same instrument. The method of determining the threshold has been fully described elsewhere.[3] The brightness of the threshold is expressed in the logarithm of micromicrolamberts ($\mu\mu$l).

THRESHOLD DISTRIBUTIONS

Visual thresholds after 20 minutes' dark adaptation are discussed in the present report because these later thresholds are apparently more responsive than the earlier ones to a withdrawal of vitamin A from the diet[4, 5, 6] and their determination is less subject to observational error.[3] In this description the threshold values for all cases were grouped together according to dark time and for each minute in the adaptation interval, 20–35 minutes inclusive, were arranged in a

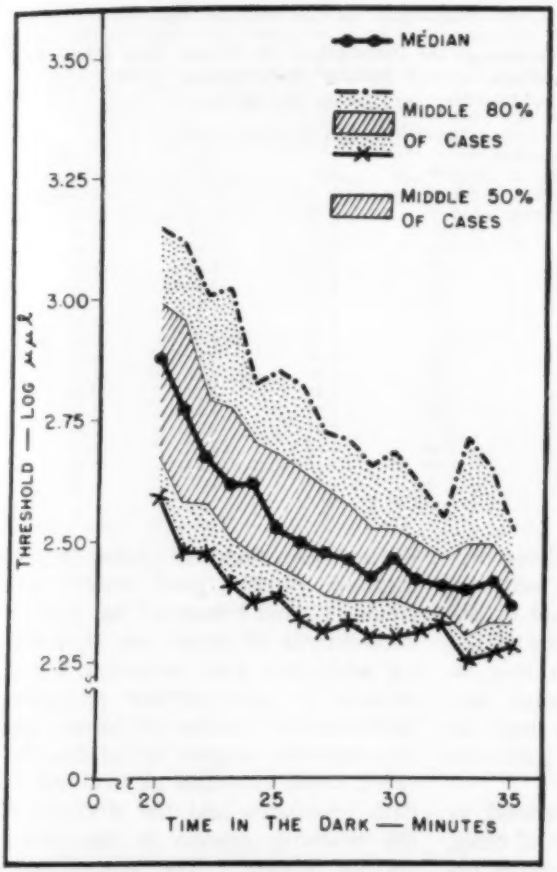

FIGURE 1—Threshold at Specified Percentiles of the Distributions for Private High School Boys and Girls, 12–19 Years of Age, After 19 Minutes Dark Adaptation Following 3 Minutes Preadaptation to 1060 Millilamberts

frequency distribution. Since the observations were made at about 3 minute intervals, each distribution contains roughly a third of the cases. The cumulative frequency percentage curve was plotted for each distribution. From each such curve five percentiles (10th, 25th, 50th, 75th, 90th), were obtained by interpolation. The values of the percentiles of the threshold distributions are given in Table 1 and illustrated in Figure 1.

Median threshold at 20 minutes is 2.89 log units; at 30 minutes, 2.47 log units. The regression of the median as well as of the other percentiles shows fluctuation, due in part to the case composition of the successive distributions. After 30 minutes the median is fairly constant and indicates a threshold level at which adaptation is nearly complete.

In Figure 1 the middle 50 per cent of cases, represented by the area between the 25th and 75th percentiles are fairly symmetrically distributed about the median. The variability of this central group shows a tendency to decrease after 20 minutes and is relatively low in the period 30–35 minutes. At that period the average difference in threshold level between the limits of the middle 50 per cent of cases is only 0.15 log units, whereas at 20 minutes the difference is about twice as great, 0.32 log units.

Above the 75th percentile the threshold distributions are noticeably skewed.

Thresholds for boys did not differ significantly from those for girls, nor was there any significant difference in threshold as between age groupings.

COMMENT

The reference distributions of threshold outlined in Table 1 indicate the performance to be expected of the middle 80 per cent of children who are: (a) In the given age range, (b) from a relatively high socio-economic level, and (c) examined according to the

TABLE 1

Threshold Values, at Specified Percentiles, of the Distributions for Private High School Boys and Girls, 12–19 Years of Age, After 3 Minutes' Preadaptation to 1060 Millilamberts, According to Time in the Dark

Time in the dark Minutes	Cases Number	Threshold values at specified percentiles				
		90th log μμl	75th log μμl	50th log μμl	25th log μμl	10th log μμl
20.0	54	3.16	3.00	2.89	2.68	2.60
21.0	48	3.14	2.97	2.78	2.59	2.48
22.0	51	3.02	2.80	2.69	2.58	2.48
23.0	56	3.03	2.79	2.63	2.51	2.41
24.0	56	2.83	2.71	2.62	2.47	2.37
25.0	57	2.86	2.69	2.53	2.45	2.39
26.0	58	2.83	2.65	2.50	2.42	2.33
27.0	55	2.73	2.61	2.48	2.39	2.31
28.0	50	2.71	2.58	2.47	2.38	2.33
29.0	59	2.66	2.53	2.43	2.37	2.30
30.0	56	2.69	2.53	2.47	2.38	2.30
31.0	48	2.60	2.50	2.42	2.36	2.31
32.0	51	2.55	2.47	2.41	2.35	2.33
33.0	50	2.72	2.50	2.40	2.30	2.25
34.0	58	2.66	2.50	2.42	2.33	2.26
35.0	50	2.53	2.43	2.37	2.33	2.28

specifications of the study. Using percentiles of the distributions offers a convenient and flexible method of defining performance. The limits of the middle 50 per cent of cases may be chosen as characterizing "usual performance," or other ranges may be selected depending on the particular problem under consideration.

If usual performance is defined as that of the middle 50 per cent of cases, the threshold at 20 minutes ranges between 3.00 and 2.68 log units; at 30 minutes, between 2.53 and 2.38 log units. Judged according to this central group, threshold values above 3.00 log units at 20 minutes and 2.53 log units at 30 minutes are high enough to warrant further study and examination of the children concerned, by means of other diagnostic procedures. Whether the threshold is actually abnormally high can be determined subsequently by repeated adaptation tests, other ophthalmological findings, and response to therapy.

In the latter connection, it should be mentioned that the evidence is not conclusive that "elevation" of threshold will respond only to vitamin A therapy. For example, Stewart [7] claims to have obtained equally good results with vitamin C, and Frandsen [8] has reported improvement of visual sensitivity during adaptation after administration of vitamin D and calcium phosphate. McFarland's [9] studies of anoxia and hypoglycemia suggest a relation between visual threshold as measured by dark adaptation and the efficiency of the oxidative process in the central nervous system. The reports mentioned indicate the possibility that a lack or failure in utilization of more than one nutritive factor may contribute to an "elevation" of threshold.

Although at the present time an unusually high visual threshold cannot be interpreted definitively as a sign of avitaminosis A, dark adaptation examinations can be useful for screening out individuals whose status is suspect because of poor performance.

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Medical Evaluation of Nutritional Status*

Roentgen Appraisal of Development†

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THE present report is based upon assessments of roentgenograms of three skeletal areas—hand, elbow, and hip—of 180 boys in a private high school and 292 boys in a public high school. These boys form a part of the total group of approximately 3,000 adolescent boys and girls. The purpose, methods, and subjects of the study have been described in a previous report from the coöperative investigation. Further studies of the roentgenograms of the entire group, and of the technic of assessment are in progress.

Nutritional requirements during childhood differ at different ages, and this age variation is always taken into account in estimating requirements or in defining criteria for the interpretation of nutritional tests and measurements. Growth, as measured by changes in body size and weight, is one important aspect of age variation, and the reciprocal relation between growth and nutrition is well recognized. During the period of growth, marked impairments of nutrition will diminish, or even abolish for a period, increments of stature and breadth as well as of weight. Conversely, the rate of growth itself is a determinant of the nutritional requirements of the individual child and a factor influencing the manifestations of nutritional deficiency diseases.

Differentiation of tissues and organs is another aspect of change occurring with age. Such change is termed developmental, and while related to growth in size, it requires separate consideration. Especially in the adolescent period, the age span of subjects of the present study, considerable variation in development exists at each chronological age. This variation is apparent even on simple inspection and classification of external features of development. Variation in development may well be related to nutritional requirements and to the individual levels manifested in response to specific nutritional measurements, such as hematological and some chemical determinations. If such a relationship exists, classification of subjects by age alone, or perhaps

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* From a coöperative investigation by the U. S. Public Health Service, Division of Public Health Methods; the Cornell University Medical College, Department of Public Health and Preventive Medicine and Department of Pediatrics; the Milbank Memorial Fund; and the New York City Department of Health.

The coöperating agencies have been assisted in carrying out this investigation by the Work Projects Administration for the City of New York, Official Project No. 65-1-97-21 W.P. 24, "Medical Evaluation of Nutritional Status."

† Based upon a report read before the Food and Nutrition Section of the American Public Health Association at the Sixty-ninth Annual Meeting in Detroit, Mich., October 8, 1940.

even by age and body measurements, may fail to reveal possible trends in nutritional measurements which could be identified with classification of subjects according to an estimate of developmental status.

The rating of development on the basis of external anatomical features made by the examining physicians in this study appeared to permit only a broad classification of subjects. In an effort to secure a more precise rating of development, therefore, roentgen studies of skeletal maturation were made.

In the adolescent age period, clearly marked qualitative changes are present in the ends of the shafts of the bones and in their related epiphyses up to the point of complete skeletal maturity. In order to describe the developmental status and developmental progress of a group of children, it is necessary that these stages of skeletal change be placed in a series, of which each film represents a successive step in skeletal maturation. A number of such series have been described, among them those of Rotch (1907), Hellman (1928), Shelton (1931), Flory (1936), and Todd (1937). Todd's *Atlas of Skeletal Maturation. I. Hand,* comprises 35 films of female hands and 40 films of the male series. Standards were also prepared by Todd and his associates for the shoulder, elbow, hip, knee, and foot, but have not been published.

Some investigators have chosen to rely upon the appraisal of a single skeletal area as a measurement of development. However, progress in different regions of the skeleton may not be uniform. In the present investigation, roentgenograms of each of three areas—hand, elbow, and hip—were secured from each subject to permit a study of skeletal maturity in several areas of the skeleton. They were assessed against the standards of Todd and his coworkers. Each of the standards is described as representing the median film from a series of children

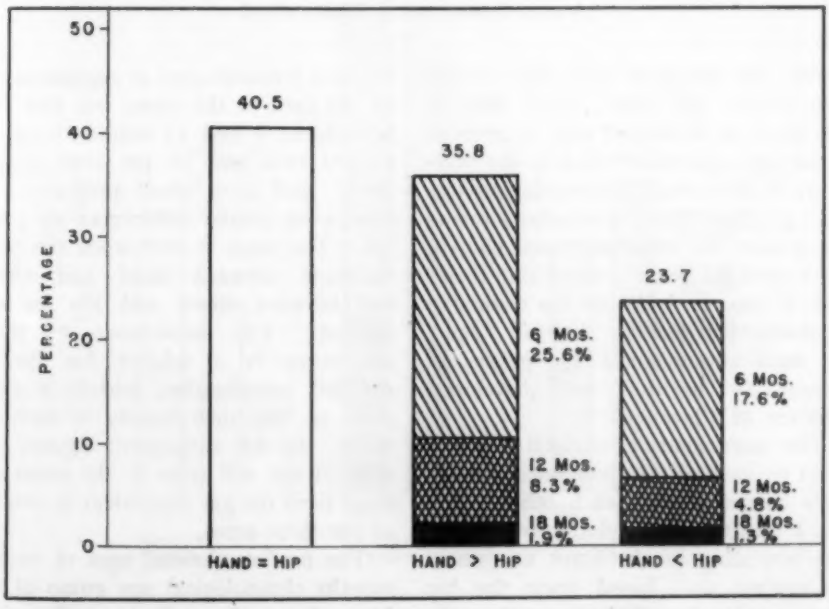

FIGURE 1—The Relation between Skeletal Age of Boys Based upon the Hand Assessment and Skeletal Age Based upon the Hip Assessment

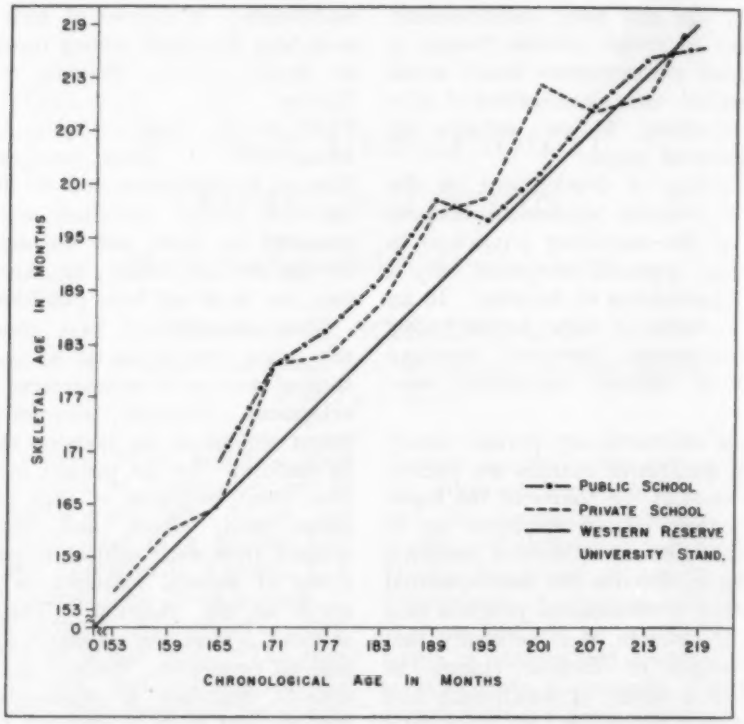

FIGURE 2—The Median Skeletal Ages by Chronological Age Classes of Boys from a Private and a Public School

whose chronological ages fall within a 6 month age span. Each film in the series is numbered and is referred to an age equivalent which is the midpoint of the 6 month chronological age span of the children from whose roentgenograms the standard was chosen. With perhaps some reservation, therefore, it may be said that the standards represent the median skeletal "age" for each chronological age group, of presumably healthy, well developed childrer of Cleveland.

The assessments of skeletal development by each of the three areas studied were compared with each other. Figure 1 illustrates the relation of skeletal age according to the hand assessment as against that based upon the hip assessment. It will be seen that the two ratings so obtained correspond within a 6 month span in approximately 40 per cent of the cases, but that differences of 6 and 12 months occur in 43 per cent and 13 per cent respectively, and in a small proportion of cases even greater differences are present. The same is true when the relationships between hand and elbow and between elbow and hip are examined. The importance of these differences is a subject for further detailed investigation, and it is sufficient at this time merely to mention them. In the subsequent figures, the skeletal age will refer to the mean derived from the age equivalent in months of the three areas.

The median skeletal ages of each 6 months chronological age group of the boys from the private and public schools are presented in Figure 2, in

which the age equivalents of the Western Reserve University standards are indicated by the continuous line. The number of cases at each year of chronological age is shown in Table 1. The

TABLE 1

Number of Cases in Each Year of Chronological Age

Age Years and Months	*Public School*	*Private School*
Less than 13	4	28
13 – 13–11	13	36
14 – 14–11	31	31
15 – 15–11	74	30
16 – 16–11	84	28
17 – 17–11	59	19
18 and over	27	8

medians of the public and private school groups approximate each other fairly closely. When compared with the age equivalents of the Western Reserve standards, the New York children appear to represent a somewhat greater degree of skeletal advancement for most chronological ages, although the differences are not great.

There is a considerable degree of variability of skeletal ages in each chronological age group for both the private and public school pupils. The range of skeletal age, for most chronological ages spreads over a span of 4 years. Figure 3 presents the percentage of children in each school with skeletal age corresponding to chronological age within a 6 month span, and the percentage of those with differences greater than 6 months. Those with differences are divided into two groups, one in which the skeletal age is greater than the chronological, and another in which the skeletal age is smaller than the chronological. Differences of 1, 2, and more than 2 years are indicated. It will be seen that approximately one-

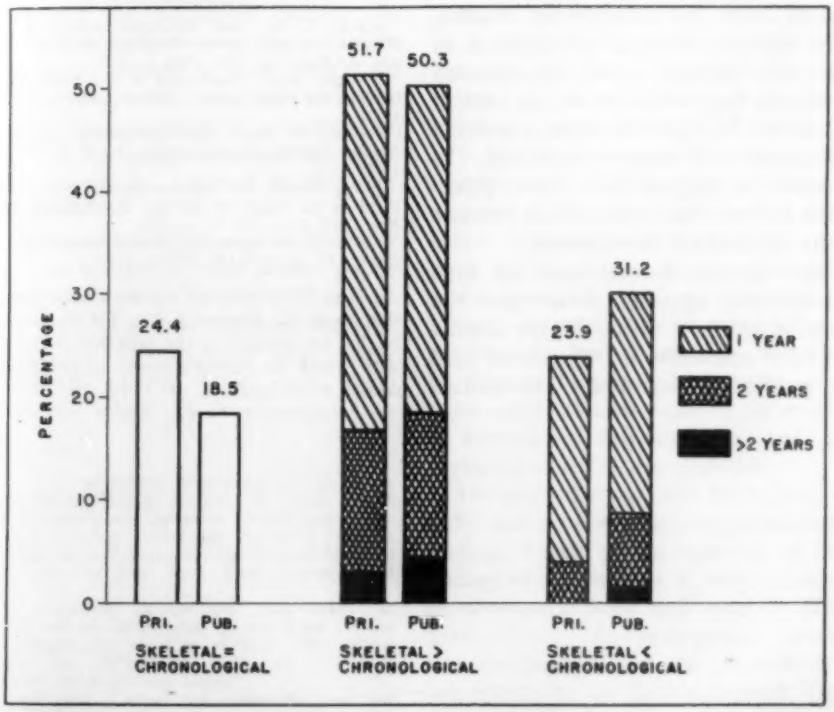

FIGURE 3—The Relation of Skeletal and Chronological Age of Boys in a Private School and a Public School

fourth of the pupils showed correspondence of skeletal and chronological age, that in approximately one-fourth skeletal age was less than chronological age, and in approximately one-half the skeletal age was greater than the chronological age. Somewhat more children in the private school were classed as having skeletal ages corresponding to their chronological ages than in the public school group, and the equivalent difference between the two is accounted for largely by the greater number of children in the public school group whose skeletal ages fall below their chronological ages.

SUMMARY

Assessment of skeletal development against standards of the Western Reserve University was carried out in conjunction with a study of nutrition. Roentgenograms of hand, elbow, and hip of each individual were studied. The degree of skeletal development in the three skeletal areas corresponded closely in approximately 40 per cent of cases, and in about the same proportion differences of 6 months appeared. In a small proportion there were differences between the areas of one or more years of skeletal development.

The median skeletal ages for each chronological age class, based upon the mean of all three areas, did not appear to differ markedly in the private and the public school groups. The median skeletal ages of both of these groups of adolescents in the New York study were somewhat greater at most chronological ages than the median skeletal ages (standard age equivalents) of the Cleveland children from whom the standard roentgenograms were selected.

A larger percentage of the private school boys than the public school boys were classed as having skeletal ages corresponding to their chronological ages, and the equivalent difference between the two was accounted for largely by the greater number of cases in the public school whose skeletal ages fall below their chronological ages.

These studies, and others now in progress including the entire series of roentgenograms, are preliminary to the use of developmental status as one basis of classification of values for certain nutritional test methods.

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NOTE: We wish to express our appreciation to H. G. Fischer & Co., 131 E. 23d St., N. Y., for lending us the portable x-ray unit with which all roentgenograms in the private school were taken.

Selecting Cases of Anemia Among Adolescents*†

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THE anemia of childhood and adolescence is, for the most part, that which results from a deficiency of iron. It is thought to be one of the relatively common deficiency diseases, although data are not available to indicate its prevalence. The requirements for iron are greatest during periods of rapid growth and, therefore, iron deficiency anemia is most likely to occur in infancy and the adolescent period. In the survey of nutritional deficiencies in high school groups in New York City it was considered essential to make a complete hematological examination, since the age group included the years when anemia is believed to be very common.

The hematological determinations made on bloods of high school pupils examined in the Nutrition Study in New York City have included those in general use for diagnosis and classification of anemia. On each blood specimen, taken by venipuncture, a hemoglobin determination, a count of erythrocytes, and a hematocrit reading were made. From these three findings three other values are obtained by computation; namely, the mean volume of the red cell, the mean hemoglobin content per cell, and the mean hemoglobin concentration per 100 ml. of red cells. These produce the hematological values in common use for diagnosing anemias.

Since all anemias are characterized by a reduction of the hemoglobin content of the blood, accurate determination of hemoglobin is a primary requisite for selecting the cases of any anemia in any population group. Classification of the types of anemia and the etiological factors require additional laboratory determinations and even special clinical study. For general surveys or health examinations in schools, determination of hemoglobin is adequate for finding anemia. If it may be difficult to reëxamine persons, or if other circumstances make it preferable, a hematocrit determination and an erythrocyte count are desirable.

The present report will be limited to a discussion of some of the preliminary findings based on an analysis of the hemoglobin values of a large number of adolescent boys and girls in New York City. The hemoglobin content was determined with the photoelectric colorimeter by the Evelyn method. One group included about 350 children, mostly Jewish, from high-income fam-

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* From a coöperative investigation by the U. S. Public Health Service, Division of Public Health Methods; the Cornell University Medical College, Department of Public Health and Preventive Medicine and Department of Pediatrics; the Milbank Memorial Fund; and the New York City Department of Health.

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ilies, and a second group included over 2,000 students attending Seward Park High School on the lower East Side, a poor neighborhood. A large percentage of the low-income group was Jewish.

HEMOGLOBIN STANDARDS FOR HEALTHY ADOLESCENTS

An important problem which confronts one in attempting to interpret the hematological findings for apparently healthy adolescents is the lack of established criteria for identifying abnormal or pathologically significant variations. A number of different standards * are in current use as normal values for adults and infants, and it is recognized that normal levels differ by sex and age. For the age period between infancy and 20 years, and especially for adolescent ages, normal levels and the limits for normal variation have yet to be determined.

In 1916 Williamson [2] studied sex and age differences in hemoglobin content of the blood by examining blood specimens from over 900 persons in Chicago. His results have been used until very recently by nearly all workers in the field to obtain *relative* levels for children and adolescents, as compared with some "normal" level for adults. The normal hemoglobin levels used for adults have varied from 13.7 to 17.3 gm. per 100 ml. of blood. By a series of studies on different groups, Osgood [3] has attempted to bring together sufficient data to improve the curve for mean hemoglobin levels for each sex for ages from 4 to 30 years. Several other studies have provided a limited amount of data for segments of the age curve, but the hemoglobin levels reported in the various studies are so different that they cannot be pieced together.

All data show that there is a definite increase in the hemoglobin content of the blood of both boys and girls during adolescence. This increase is especially rapid and large for boys. Osgood divided the ages above 3 years into only two groups, and suggested a normal level for ages 4 to 13 years and a normal adult level which begins at 14 years of age for both boys and girls. The use of a childhood level and an adult level has been common, with the dividing age varying from 13 to 16 years of age. Such divisions are a compromise for simplicity but the values used do not adequately represent either sex at each year of age from 12 to 17 years. A careful selection of cases of iron deficiency anemia among persons of these ages requires that the values used as criteria of satisfactory hemoglobin levels be consistently good for each child.

In planning the study in New York, the need to evaluate standards for this age group was recognized. Examinations on about 350 children attending a private high school were collected for this purpose. With complete examinations and the results of a number of special tests for specific nutritional deficiencies available for each child, it is possible to select with unusual care a group of children for special study. On the basis of some finding that might affect the hematological values, 41 cases were discarded. For ages from 12 to 17 years, hematological data are available for 17 to 34 persons of each sex at each year of age.

HEMOGLOBIN VALUES BY SEX AND AGE

The mean hemoglobin content of the blood for each sex-age group is shown in Figure 1. For boys, the increase in

* The terms "standard" and "normal" are used according to traditional usage. Although they are assumed to refer to values typical of the healthy state, they are usually average values for persons who considered themselves in good health. More precise terminology is needed to indicate the significance of recommended values. The problem of standards has been more fully discussed in another paper.[1]

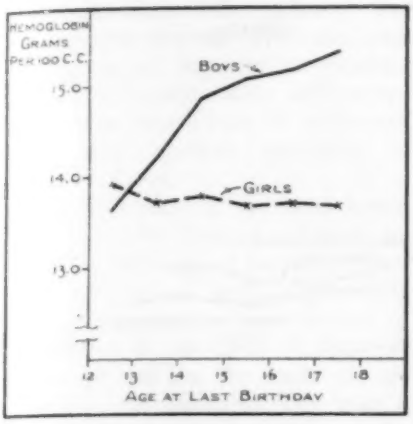

FIGURE 1—Mean Hemoglobin Values at Each Year of Age for Adolescent Boys and Girls from High-income Families

hemoglobin level is rapid at ages 13 and 14 years and continues through age 17 years, but at a reduced rate in the older ages. For girls, the highest hemoglobin value is at age 12 years, but, on the basis of this small number of subjects, it is not significantly higher than the means for other age groups. Other evidence suggests, however, that this early, but temporary, higher level for girls may be typical. In general, the means are on a level throughout this age period, and even the 12 year old girls had attained the hemoglobin level reported as characteristic of adult women.

The mean hemoglobin content of the blood for these New York City girls was higher than that reported by Osgood for girls 12 and 13 years of age in Oregon, but lower at 14 to 17 years of age. Similarly, for boys aged 12 and 13 years, the hemoglobin level was much higher for the New York City group than for the Oregon boys, but at 15 years and older it was lower. The increase with age in Oregon apparently came later and was greater and more precipitate than for this New York group.

HEMOGLOBIN VALUES AND ADOLESCENT DEVELOPMENT

Since the rapid change in hemoglobin content of the blood during these years is a physiological change associated with growth and the demand for added iron in the body, it seems logical to assume that the hemoglobin level may be more closely correlated with a child's growth or maturity than with his chronological age. Two indices of maturity are available for children in this study. One is a rating based on sexual development and the other is the skeletal age rating based on roentgenograms. Only the development ratings will be discussed at this time. The examining physicians classified each boy according to the amount of pubic hair, in one of four categories; namely, none, sparse, moderate, and abundant; and classified each girl according to breast development in one of four categories; namely, none, areolar only, moderate, and adult. Obviously, these classifications cannot be applied by any objective measurable criteria and represent only a gradation interpreted by the physician's judgment.

Among the private school group, there were no girls without breast development and only 8 were in the areolar development class. Thus, even the younger girls were classified as showing moderate breast development. No significant difference in hemoglobin levels for girls in the "moderate" and "adult" classes was found,* the mean values being 13.6 and 13.8 gm. per 100 ml., respectively. The boys, on the other hand, were distributed over the four categories. The average hemoglobin level for boys with no pubic hair was 13.5 gm., about the same as that for 12 year old boys; for those

* Other indices for sexual development for girls may give more significant classifications. For example, the interval since menarche is more objective and a preliminary study suggests that it may be a better criterion of maturity.

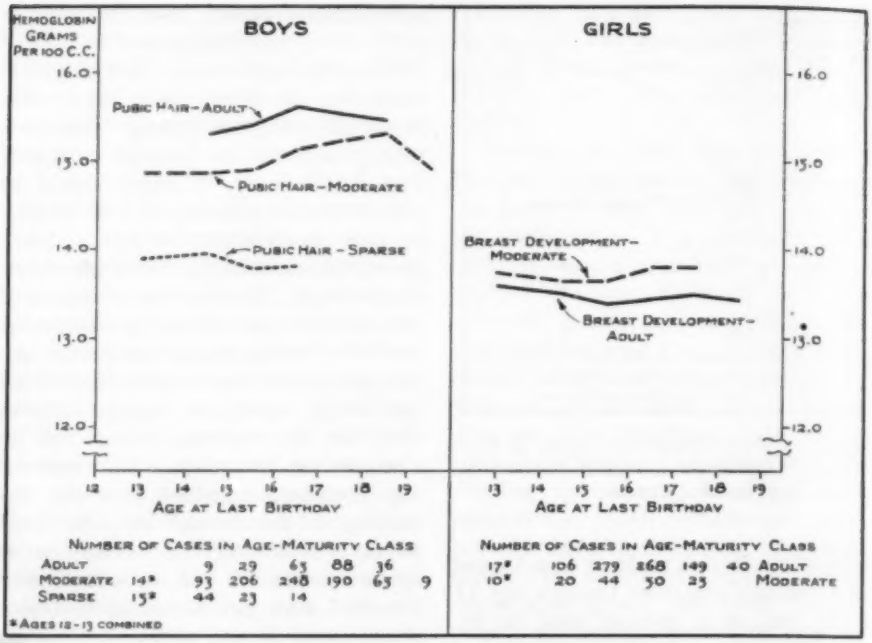
HEMOGLOBIN GRAMS PER 100 C.C.
BOYS
GIRLS
16.0
15.0
14.0
13.0
12.0
PUBIC HAIR – ADULT
PUBIC HAIR – MODERATE
PUBIC HAIR – SPARSE
BREAST DEVELOPMENT – MODERATE
BREAST DEVELOPMENT – ADULT
12 13 14 15 16 17 18 19
AGE AT LAST BIRTHDAY
13 14 15 16 17 18 19
AGE AT LAST BIRTHDAY
NUMBER OF CASES IN AGE-MATURITY CLASS
ADULT 9 29 63 88 36
MODERATE 14* 93 206 248 190 65 9
SPARSE 15* 44 23 14
NUMBER OF CASES IN AGE-MATURITY CLASS
17* 106 279 268 149 40 ADULT
10* 20 44 50 23 MODERATE
*AGES 12-13 COMBINED

FIGURE 2—Mean Hemoglobin Values According to Sexual Development and Chronological Age for Adolescent Boys and Girls from Low-income Families

with sparse pubic hair, the hemoglobin average was 14.1 gm., intermediate between that for 12 and 13 year old boys; for those with a moderate amount the average was 14.9 gm. and corresponded with that at 14 years of age; and for those with abundant hair, the average hemoglobin value was 15.2 gm., or approximately the mean for ages 16 and over. These four categories gave nearly the same range for average hemoglobin levels as the eight chronological age groups, and the coefficient of variation (ratio of standard deviation to the mean) for each group was 5 or 6 per cent, the same as for chronological age groups.

The numbers of boys and girls of high income were not large enough for subclassification of the sexual development groups according to chronological age. For this, it is necessary to use the records for the 1,172 boys and 1,027 girls from low-income families examined at Seward Park High School. In Figure 2, the average hemoglobin content of the blood is shown for each development group according to single years of age. It is evident that the average hemoglobin levels for boys in the same developmental class but of different chronological ages are very similar. Boys 15 and 16 years of age classified by the physicians in the "sparse"-pubic-hair group had the same hemoglobin content that was found for boys 12 and 13 years of age of similar development. Boys of similar age, but more advanced in sexual development, always had higher average hemoglobin levels. The differences were much greater between groups with slight evidence of sexual development and those with moderate development than between the moderate group and adult development group. It is apparent that the changes in hemoglobin content of the blood are

closely associated with puberty, and that expected normal levels on some classification of maturity or development would provide more satisfactory standards for boys during the adolescent period than normals according to chronological age.

These differences in the mean hemoglobin levels for boys of different development, although of similar chronological age, are of such a magnitude that it is essential to take account of *development* in all cases of apparent anemia selected on the basis of age standards. An individual boy with a low hemoglobin value according to the age standard may be within normal limits if his development is less than average for his years.

The girls examined in Seward Park High School were either of moderate or adult development. Differences in hemoglobin for girls of similar age in these two stages of maturity were less than those noted for boys and are in the *opposite direction*. Thus, girls classified as having moderate breast development had, on the average, somewhat higher hemoglobin values than girls in the adult class. There is no clear explanation for the age curves for these two groups. However, these and other data suggest that an increase in hemoglobin occurs during development, but as development is completed, blood levels for girls decrease slightly. These differences are small enough that a single normal level for hemoglobin is probably satisfactory for girls who are at least moderately developed. For younger girls than those in this study, it may be important to consider development as well as chronological age.

An important implication of the differences in normal hemoglobin levels, according to maturity, is its possible relation to the wide differences reported in various studies on this age group. Thus, the differences already mentioned in the age curves for boys and girls examined in Oregon and in New York City may reflect chiefly a later and more constant age of maturity in the Oregon group, which produced low hemoglobin levels at 12 and 13 years of age and relatively high levels at older ages. Regional, climatic, and racial differences, as well as iron deficiency, cannot be determined unless the effect of adolescent growth and development is held constant.

Associated with the increase in hemoglobin during adolescence are other changes. Since hemoglobin is carried by the erythrocytes, these must increase either in number or size. Actually, both changes occur, and the derived indices commonly used in classifying cell volume and hemoglobin content of the cells also change. These changes further complicate the problem of diagnosing and classifying anemias in this age group, but there is not time to discuss them.

HYPOCHROMIA IN THE NEW YORK SURVEY

No estimate of the prevalence of cases of iron-deficiency anemia in the groups examined in New York City will be attempted at this time. However, some indication of whether iron was a nutritional deficiency in the low-income groups may be obtained by a comparison of the mean hemoglobin levels for boys and for girls of a specific developmental age with the mean hemoglobin values for children from high-income families in the corresponding sex and developmental class. The children from low-income families were also subdivided according to whether they were Jewish or Italian. For each group of boys, the mean hemoglobin level found did not differ significantly from that for its corresponding group from high-income families. For several groups of girls in low-income families the mean hemoglobin value was signifi-

cantly lower than that for a corresponding developmental group from high-income families. Specifically, the Jewish girls of adult development and the Italian girls of moderate and of adult development had an average hemoglobin level below that for girls from high-income families. Since Italian boys had hemoglobin values similar to those for Jewish boys, it is reasonable to conclude that the low values for Italian girls are not due to racial differences. It appears, therefore, that few boys from low-income families were deficient in hemoglobin but some of the girls had at least a mild anemia.

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Chemical Methods for Determining the Plasma Level of Vitamin C*†

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METHODS for the chemical estimation of vitamin C in most frequent use are based upon the color change resulting from reduction of 2.6 dichlorophenol-indophenol.

Dye (oxidized) + l-ascrobic acid (reduced)
↓
Dye (reduced) + dehydroascorbic acid (oxidized) colorless

This dye, applied first by Tillmans [1] in determinations on foodstuffs and adapted later to the analysis of blood, reveals the amount of reduced ascorbic acid. Only this form occurs in the animal body; therefore, determination of its level in bodily fluids, with precaution against extraneous oxidation, gives a measure of their vitamin C concentration.

Methods utilizing the reaction with this dye for determination of ascorbic acid in plasma are of two types: titrimetric and colorimetric. In the titrimetric procedures derived by Farmer,[2, 3] standardized dye in a microburette—really a capillary pipette with flow controlled by screw pressure on a rubber bulb containing mercury—is titrated into plasma until the first trace of color appears. That is the end point indicating that all the ascorbic acid has been oxidized, that the dye is now present in slight excess, and that further amounts of dye cannot be reduced. In the colorimetric method devised by Mindlin and Butler,[4] a photoelectric instrument is used to determine the difference between the transmission of light by a dye solution, called a blank, and the dye solution and plasma, called the sample, the latter having a less intense color and therefore transmitting more light. The instrument is calibrated with known ascorbic acid solutions.

These titrimetric and colorimetric procedures each give rise to two methods on the basis of the size of sample. In his titrimetric procedure Farmer first used 2 ml. samples of plasma; later he adapted the procedure to 0.1 ml. These are known as the macro- and microtitrimetric methods, respectively. Mindlin and Butler published separate methods for photelometric determinations on 2 ml. and 0.1 ml., respectively. These are designated as macro- and microcolorimetric, respectively. These four methods based

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* From a coöperative investigation by the U. S. Public Health Service, Division of Public Health Methods; the Cornell University Medical College, Department of Public Health and Preventive Medicine and Department of Pediatrics; the Milbank Memorial Fund; and the New York City Department of Health.

The coöperating agencies have been assisted in carrying out this investigation by the Work Projects Administration for the City of New York, Official Project No. 65-1-97-21 W.P. 24, "Medical Evaluation of Nutritional Status."

† Based upon a report read before the Food and Nutrition Section of the American Public Health Association at the Sixty-ninth Annual Meeting in Detroit, Mich., October 8, 1940.

on the reaction with indophenol dye are available for the determination of vitamin C in plasma.

Not infrequently the question is asked: What is the best method for determining vitamin C in blood? Actually the best method depends on several conditions. It is determined in part by the available resources in both test material and equipment. For instance, a micro method is better than a macro, if only a few drops of blood are available. A method is also judged by the extent to which it meets particular requirements in simplicity and rapidity. Then, too, its appropriateness is gauged by its performance within the limits of accuracy desired. Significant as are all these items in fixing the suitability of a method, its accuracy is an especially critical quality. It should be remembered that the amount of vitamin C which is to be detected in the blood is normally very small; and under certain circumstances may be infinitesimal.

The present report includes the results on an evaluation and comparison of methods. All four methods were studied, each with its specified sample size. It might be advantageous to mention the statistical methods used in the analyses of the data. In almost every instance, the problem was comparison of values: *e.g.*, the duplicate values from one method; the values from one method with those of another method or with known values. Hence, we were dealing with distributions of differences.

In the first series of experiments standardized aqueous solutions of ascorbic acid in concentration levels over a range similar to that in plasma were used. As revealed from determinations on these solutions, the macrocolorimetric method showed the greatest precision; at all concentrations the mean observed value which it yielded was very close to the standard value. None of the other methods equalled this performance. In general, the macro showed less variability than did the micro methods. These results point to the superiority of the macrocolorimetric method which combines least bias with least variability. Indeed, it has an almost unbelievably high degree of accuracy.

When determinations by the macrocolorimetric method are conducted on plasma before and after the addition of definite amounts of ascorbic acid, the final value may be compared with the initial value plus the weighed amount of ascorbic acid. Any difference between them may be compared with the difference between duplicate determinations on the original plasma. Between the calculated and observed values for recovery the mean difference is very small and insignificant. These results indicate practically complete recovery of added ascorbic acid. From this it may be inferred that in the processing of plasma there is no loss of ascorbic acid from either interfering factors or manipulations.

But, what is more important, these results indicate that the macrocolorimetric method, which is of demonstrated accuracy for determining vitamin C in pure solutions, is of almost if not equal precision for determinations on plasma. It is therefore possible to use it in ascertaining the actual vitamin C values of plasma samples and to take these values as the basis for evaluating and comparing the other methods on plasma.

For this purpose determinations by all four methods were conducted on each plasma sample in a series extending over the usual range of concentration level. The microcolorimetric method showed lower values at all levels than did the macrocolorimetric method. These differences were very significant at all concentrations. Presenting still another pattern, the macrotitrimetric method on plasma yielded higher values

at all levels than did the macrocolorimetric method. This difference was very significant at all levels except from 0.80 to 1.19 mg., and even here it was significant. As for the microtitrimetric method, on plasma it overread at the lower and underread at the higher levels; its greatest difference from the macrocolorimetric method was at the highest concentration, 1.2 to 2.0 mg.

Thus, in contrast to the other methods, the macrocolorimetric procedure showed little or no bias. Although at high levels the macrotitrimetric had greater accuracy than did the microcolorimetric method, they had equal bias, though opposite in direction, at low concentrations. The maximum bias of the microcolorimetric method was 0.07 mg. That of the microtitrimetric method, amounting to 0.10 mg. or less, was more pronounced. Both macro methods were less variable than were the micro procedures. On the basis of minimum bias and variability the macrocolorimetric method had greatest accuracy. Of lesser but still quite satisfactory precision were the microcolorimetric and macrotitrimetic methods. Distinctly inferior to these was the microtitrimetric procedure. It should be appreciated that the results with the titrimetric methods reflect in large part the technician's skill as well as the inherent quality of the method.

One further point about the determination of vitamin C should be cited. There is a widespread impression that vitamin C in blood is very sensitive to destruction with loss on standing, even if refrigerated. This is an important practical consideration since often it is desired to obtain blood samples at one location and transport them to the laboratory some miles distant. It was found that the occurrence and rate of loss in vitamin C depends on the medium and temperature. Plasma kept at room temperature for 24 hours shows complete disappearance of vitamin C. In the refrigerator it undergoes a very slight decrease in vitamin C content within 3 to 4 hours; an appreciable decrease in 24 hours; and a marked decrease in 72 hours. But whole blood or filtrate kept under similar cold conditions shows no loss during 24 hours. Indeed, kept at room temperature whole blood shows only an infinitesimal decrease in its vitamin C content at the end of 3 hours.

In appraising the nutritive condition of pupils in two high schools in New York City, one from high-income, the other from low-income families, data were obtained mostly by the macrocolorimetric method on the vitamin C level of the blood. Since both boys and girls were examined in the two schools, it is possible to analyze the data in relation to possible sex as well as income level differences. Within the same income group, that is, at each school, a somewhat smaller proportion of boys than girls have high values.

But the difference in values between the two income groups is much more marked. For both boys and girls, the peak of the frequency curve for the high-income group is located at a higher concentration level than for the low-income group and a higher proportion of the former than the latter have high values. In the high-income group 78 per cent of the 164 girls and 69 per cent of the 178 boys have levels of 1 mg. per cent, in contrast to 29 per cent of the 1,088 girls and 23 per cent of the 1,059 boys in the low-income group.

Furthermore, a greater proportion of the low- than high-income group show values at the lower concentration levels. If for the moment the 0.6 mg. level is arbitrarily taken as a dividing line, without prejudice to what may ultimately be found to be the level or zone of the earliest pathological significance, it is found that 48 per cent of the boys and 46 per cent of the girls in the low-

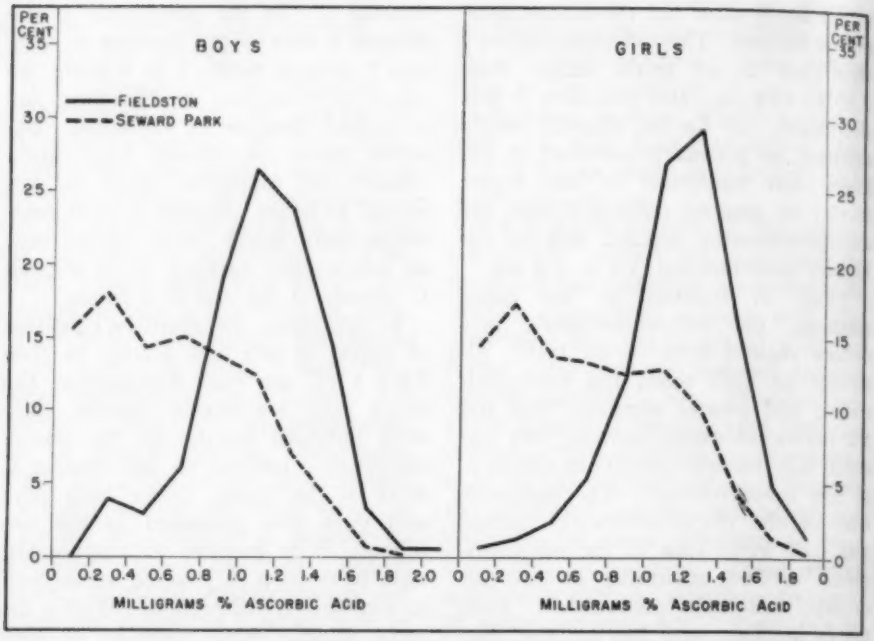

FIGURE 1—Frequency Curves for Blood Levels of Ascorbic Acid in Adolescents Grouped According to Sex and Family-income Level. The Solid Line Indicates Values on Adolescents from High-income Families; the Broken Line, from Low-income Families.

income group have concentrations less than 0.6 mg., while only 7 per cent of the boys and 4 per cent of the girls, respectively, in the high-income group have such values. Indeed, 16 per cent of the boys and 14 per cent of the girls in the low-income group show concentrations below 0.2 mg. per cent, while only one child, a girl, in the high-income group showed such low values.

It is evident that for both boys and girls a greater proportion in the low- than in the high-income group showed low vitamin C levels. This difference between the high- and low-income groups, with respect to the ascorbic acid concentration in blood is notable.

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A NEW DEPARTURE IN FEDERAL PUBLIC HEALTH LEGISLATION

A FEW months ago the Seventy-seventh Congress passed H.R. 4926 which is designated as the "Labor-Federal Security Appropriation Act 1942." This Act was approved by the President on July 1, 1941. Among other things it contains is an appropriation of $1,200,000, "for the cost, including subsistence, but not including cash allowances to trainees, of refresher, student nurse and post-graduate nursing courses, including courses in midwifery, provided by public agencies operating public educational facilities and by hospitals and nursing schools in accordance with plans submitted by them and approved by the Surgeon General of the Public Health Service, at hospitals with recognized schools of nursing, and, where necessary, in the case of postgraduate courses at other institutions, for approved persons who have been licensed to practice as registered nurses under the laws of a State, Territory, or the District of Columbia. . . ." Payment is to be made through certification by the Surgeon General of the U. S. Public Health Service to the Secretary of the Treasury of the name of the agency, nursing school, or hospital to whom payment is to be made, in accordance with regulations promulgated by the Surgeon General.

The above action was taken by the Congress as a defense measure, and will without doubt aid in keeping a steady flow of nurses for military and civilian needs. There are, however, interesting and unusual elements in this legislation, and these will receive commendation from some and condemnation from others. Certainly such new departures in federal aid as they relate to public health deserve comment.

So far as can be learned this is the first time that the federal government has gone into undergraduate professional education on a large scale. Heretofore it has been assumed that the problem of getting into a profession—medicine, engineering, nursing—was a responsibility of the individual; that the provision of teaching staff and facilities for undergraduate instruction of this sort was an affair generally outside the scope of federal interest or responsibility. It is true that federal aid has heretofore been given to state health departments in the further training of

public health personnel, but in these instances persons receiving fellowships had already acquired a professional status. Attention is called to this difference not necessarily in criticism, but because it may, in the future, prove to have been a significant departure.

A second thing to be noted in this appropriation of funds in its relation to postgraduate courses is that the aid is limited to a particular and specified group: nurses. Fellowships provided for public health personnel under the Social Security Act made postgraduate instruction available for physicians, nurses, engineers, and specialists of various sorts, on the staff of official agencies. With no tendency to argue against the need for more and better trained public health nurses, we must at the same time wonder whether in the future physicians, engineers, dentists, and other special professional groups may not attempt to have similar limiting legislation enacted in the interest of their professions. Such a development would be unfortunate, for appropriations earmarked for this or that postgraduate profession in public health would not necessarily, in their respective amounts, reflect either the general need for training of each type of personnel or the divergent necessities in the various parts of the United States. Finally, from the standpoint of public health work, this Act, for good or ill, places federal aid in postgraduate education in an entirely new category: it provides for direct dealing between the U. S. Public Health Service and the various educational institutions which may be concerned. Referring again to the Social Security fellowships, it will be remembered that the federal funds available were allocated to the various states, and that within rather broad limits the health officer of each state made the decision as to who would receive such fellowships. Such aid as went to universities was channelled through state health departments. In general, the state health officers exercised conscientious and sound judgment in the award of these fellowships. Arrangements for aiding public health schools were, however, somewhat clumsy and roundabout, though generally workable. Now, in connection with undergraduate nursing there is no particular reason why recommendations of candidates should be made by the state health officers, for the majority of nurses will not go into public health work. On the other hand, in connection with postgraduate education of public health personnel, we are a little reluctant to see the state health officers removed from the picture, particularly as this may prove the entering wedge for breaking a traditional and fine relationship between the Public Health Service and the health departments of the several states.

On the whole it is probable, at least in this emergency, that the benefits and immediate objectives of this new departure in federal aid in public health will offset its disabilities. In such ventures, however, unsuspected implications and potentialities often arise. Minor or emergency actions may establish precedents that lead to major and chronic results.

A JOB BY THE U. S. PUBLIC HEALTH SERVICE

MOST of the officers of the United States Public Health Service who now direct its affairs went through that trying period in 1917–1918, when public health problems created by the concentration of military and civilian personnel in certain areas of the country severely taxed the resources of state and local health departments. As a result of that experience and in view of the public health implications of current defense measures, the Surgeon General and his advisers early recognized

the importance of prompt and competent assistance to the health departments of those states in which intensive defense activities are in operation.

Quite obviously, no large reservoir of trained personnel was available for the purpose in mind. Equally obviously, new personnel must be appointed and put on duty very quickly. The Surgeon General, therefore, called a conference of representatives of universities providing postgraduate instruction in public health and asked for advice as to how, in the circumstances, such personnel might best be trained. There was general agreement along four lines: (1) That there was not sufficient time to permit leisurely, academic graduate instruction of these appointees. (2) That the soundest procedure would be to provide an orientation course which would equip them to discharge the particular duties demanded by the emergency. (3) That such an orientation course could best be given by a temporary faculty of Public Health Service officers with occasional supplementary instruction from outside lecturers. (4) That part of the instruction should be in field work, under supervision.

These things decided upon, the Surgeon General detailed for temporary faculty the best Service talent available, and designated the National Institute of Health, with its excellent classrooms and laboratories, as headquarters. Field training facilities in defense areas were provided in Maryland and Virginia through the coöperation of the health officers concerned. The course consisted of four weeks' intramural instruction, ten days to two weeks under supervision in the field. Particular emphasis was directed to the following: (1) The work of the U. S. Public Health Service and other federal agencies in national defense. (2) Communicable disease control, with special stress on venereal disease control. (3) Public health administration, state and local. (4) Environmental sanitation, with special reference to defense areas. (5) Industrial hygiene, with respect to the production of defense materials. For certain personnel more intensive work was given in industrial hygiene, and a two weeks' period of instruction in mosquito control was set up in the Norfolk, Va., area.

Classes were begun in April and new groups were admitted in May, June, July, August, and September. Fifty to sixty public health workers have constituted a class. From the first five courses, including the mosquito control course, nearly 300 physicians, nurses, and sanitary engineers have been assigned to assist in defense areas in thirty-nine states and territories.

Such swift, orderly, and effective action as this is heartening, though to be expected from the Public Health Service. It is but one more indication of the desirability of entrusting to that organization such new and emergency problems as may arise in connection with the public health aspects of national defense in the United States.

Credit Lines

A Digest of Diversified Health Interests

D. B. Armstrong, M.D., and John Lentz, M.S.

HOLLYWOOD PRESENTS – – –

Cordial thanks are due the motion picture industry for two recent films dramatizing themes in the realm of medicine and public health. Unfortunately, both pictures have titles which give no indication of their scientific import, but readers are urged to be on the lookout for "Dive Bomber" and "No Greater Sin."

"Dive Bomber" comes from the Warner Brothers' studio—the producers of two other memorable pictures with medical themes: "The Story of Louis Pasteur" and "Dr. Ehrlich's Magic Bullet." The latest film is devoted to research in aviation medicine and it is commendable on many counts. It shows what medicine is contributing to the progress of aviation by solving the strange and unpredictable ailments that attack pilots during high altitude flying. It also pictures the extreme care that "flight surgeons" exercise to protect the health of the men in this branch of our armed forces. Experimental research methods in aviation medicine are explained in considerable detail and with an unusual dramatic "punch." The film leaves one with the conviction that skilled medical research has been as important as improved flying craft in making it possible for man to penetrate higher and higher into the blue.

"No Greater Sin" comes from a new producing firm—University Film Productions, Inc. This picture is Hollywood's first attempt at a dramatic treatment of problems that arise in a community where national defense industries and an army camp are located. The chief problem dealt with in the film is that of syphilis and its spread. The plot is necessarily dramatic as this film is for theatrical use only. There is, however, some very good health education material in the picture as it emphasizes the danger of quack treatment, the necessity for blood tests, and the rôle that the health official can play in venereal disease control. "No Greater Sin," despite its lurid and unfortunate title, has been endorsed by many national agencies interested in the country's social hygiene movement. Dr. Ray Lyman Wilbur, president of the American Social Hygiene Association, has said: "The picture has real value and is worthy of support. It is dramatic and medically reasonable." Dr. Walter Clarke, executive director of the A. S. H. A., has made the following statement: "The picture possesses much educational merit. It is not formally sponsored by the American Social Hygiene Association, but health officials should encourage its use in theaters for it will do a great deal of good." Dr. Clarke emphasized the fact that "No Greater Sin" does contain some medical errors of a rather minor nature. These errors, however, would not be misleading to the public and consequently the A. S. H. A. favors a wide use of the film.

Please address samples of printed matter, comments, or other editorial contributions to the editors at One Madison Avenue, New York, N. Y.

POSTERS FOR PARENTS

Appealing, refreshing, convincing—these are the words that best describe a series of nine posters that the Maternity Center Association of New York has made available. Posters possessing these qualities are sure to attain their objective. In this instance, the objective is to impress upon prospective parents some of the obligations that must be shared before and after the birth of a baby. These posters fulfil their purpose successfully.

Moreover, they are good examples of modern poster art. Extreme simplicity is used in the layout of each. The "official colors" of babyhood—"boyish blue" and "girlish pink"—form the dominant color scheme. The illustrations, which include both photographs and simple drawings, are well chosen. The copy on each poster is in keeping with the trend toward shorter captions, as indicated by the following:

Babies thrive best when parents pull together
Care for your baby—you'll find it's real fun
Expectant father—your wife needs you most when baby comes
Expectant mother—care for your baby by caring for yourself

Clinic walls can be made bright and cheerful with this series of posters. They are available in two sizes: a set of three measuring 34 inches by 20 inches, and a set of six measuring 23 inches by 20 inches. The complete set is available for $1.00 (postpaid) from the Maternity Center Association, 645 Madison Avenue, New York, N. Y.

SAY IT WITH PICTURES

"One picture is worth a thousand words" according to an old Chinese proverb. After reviewing *Photographs and How to Use Them*, a new publication issued by the Social Work Publicity Council, one is tempted to revise the Chinese concept to read: "One picture is worth thousands of words." This book by David Turteltaub, Ph.D., is a study of the psychology and the effective use of pictures in publicity. Among the subjects covered are ideas for pictures, pictures as symbols, how to tell stories in pictures, how to photograph intangibles, how to get pictures, and how to obtain releases from persons whose photographs are used. Each of these subjects is helpfully explained, and anyone who makes use of this book will gain a new conception of the emotional appeal of photographs.

Each section of the book is illustrated with striking examples of pictures that have been used to interpret public health and social welfare. Other notable features of this publication are excerpts from the writings of Margaret Bourke-White—one of our best known photographers—and a bibliography of useful books and magazines on photography. It should be pointed out that this book deals with photographs to take; not how to take them.

Since the time for planning annual reports will soon be at hand again, a copy of *Photographs and How to Use Them* would be of great assistance to those who want to make this year's report more attractive photographically than that of last year. This publication sells for $1.00 per copy. If interested, write to the Social Work Publicity Council, 130 East 22nd Street, New York, N. Y.

NOTES ON NEW PUBLICATIONS

"Doctor . . . What Can I Do?" This familiar query is the very apt title of the latest booklet issued by the National Foundation for Infantile Paralysis, Inc. This publication was prepared "to promote a better understanding of poliomyelitis," and it will assuredly achieve its purpose for it is a competently written and remarkably thorough exposition of the subject. The pamphlet was designed primarily for

use in areas where there is an increased prevalence of the disease. It is addressed to parents and the information presented will answer many anxious questions and allay unnecessary fears. The material in the publication pertaining to the nature of the virus is one of the best explanations for laymen that we have encountered on this disease agent. Incidentally, a vicious fallacy regarding poliomyelitis that has gained currency among some sections of the general public is that the disease affects the victim's intelligence. This booklet points out the fact that this is untrue. Since this false notion is held in some uninformed quarters, the explanatory statement is timely. Copies of "Doctor . . . What Can I Do?" are available without cost from the Foundation, 120 Broadway, New York, N. Y.

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The third publication in the Workers' Health Series (issued by the U. S. Public Health Service) tells the story of a "killer"—carbon monoxide gas. The title is "KO by CO gas." Heretofore all printed material that we have read on the subject of carbon monoxide has been as matter-of-fact as a blueprint. But the author of this leaflet has succeeded in developing copy that has some spice in it. At the same time no necessary medical advice or first aid directions have been omitted. In addition to these features, the publication is illustrated with a series of clever sketches depicting a worker giving "the KO" to CO. This publication, by virtue of its original execution and sound information, will appeal to many readers aside from the audience for which it is specifically intended. Copies of this leaflet are available, at *5 cents each*, from the Superintendent of Documents, Washington, D. C.

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Compliments are in order for the City Department of Public Health of Newton, Mass., which has designed and distributed a pamphlet to acquaint the citizens of Newton with the services of its health department. This publication has many distinctive features which make it worthy of note. In the first place, it gives an excellently illustrated summary of the measures taken by the health department to "assure every resident the best in health protection." In other respects, the report does a good job of accounting in that it shows how public funds are spent on health measures. The cover of this pamphlet is particularly striking. It is in the form of an insurance policy on which "life benefits," "annual premiums," and similar expressions are cleverly employed to set forth the "Newton Health Policy." Pamphlets such as this should arouse a warm responsiveness on the part of the public to the services of the health department. Any health agency which is seeking ways to familiarize citizens with its work should see this publication, for it is an outstanding promotional effort.

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"The American Plan for Venereal Disease Control" is the title of a folder produced by the Bureau of Social Hygiene of the Department of Health of the City of New York. Four points constitute the basis of this particular "American Plan": (1) Find the Case; (2) Treat the Case; (3) Find and Control Sources of Infection and Contact; (4) Education. An introductory statement in this folder outlines the department's policy with regard to the private physician in venereal disease control activities. In coöperation with the medical societies of New York City, a list of qualified physicians, who are willing to receive patients referred by the department for diagnosis and treatment at moderate fees, has been compiled. The names of five of these physicians, selected in strict rotation, are given to each applicant for private

medical care, who makes his own final selection of a doctor. Moreover, the folder stresses the fact that all educational materials issued by the department urge examination and treatment by the family physician.

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Volume I, Number I of *Office, Field, and Lab* was recently distributed to the staff of the New Jersey State Department of Health by the Department's Health Education Service. This monthly publication, written and mimeographed by departmental employees, serves to keep the entire staff informed regarding the work (and play) of the department, to supply interesting personal notes, and to present a limited amount of health education material. A publication of this sort can do a vast amount of good in creating an esprit de corps among the staff. Good luck to *Office, Field, and Lab!*

CONCERNING A PRAYER

This may seem like an odd sort of subject to comment upon in these columns, but those who value the privilege of using this country's libraries will appreciate the profound significance of a prayer delivered at the dedication of the Yale Medical Library last June. Ever since the Blitz began over Europe, news reports have told of great libraries crumbling under German bombs. Next to loss of life and human suffering, no phase of warfare seems quite so deplorable as that which wipes out priceless books and other treasures that can never be replaced. British medical journals have told of the losses sustained by the Library of the Royal College of Surgeons and other medical collections. Last winter, when the Luftwaffe concentrated its venom on the cultural nerve center of London, six million volumes went up in flames! Among the items of irreplaceable value that have been damaged is the famed collection of books and other historical material pertaining to the life of Dr. Edward Jenner and the history of vaccination. Those who have had occasion to draw upon the resources of European libraries cannot help but feel a sense of personal loss over this destruction.

All of which should make us doubly thankful that in our country great medical libraries—such as that at Yale—are being built and expanded for the use of the medical and public health professions. A prayer delivered by the Reverend George Stewart at the Yale dedicatory ceremonies expresses in a poetic way the values that a library represents. Here is an excerpt from that prayer:

> And now we dedicate this library
> To the preservation of a
> Varied and timeless culture,
> For the enlightenment of youth,
> For the comfort of the scholar,
> The inspiration of inquiring spirits,
> As a rebuke to synicism,
> As a refuge from contemporary strife,
> As an assertion of faith,
> For the steadying of the mind,
> The quickening of the heart,
> To the glory of past workers,
> To the awakening of curiosity,
> That men may here see
> The pageant of thought
> And be led in this day
> To dare their best.

May none of our libraries—medical or otherwise—ever crumble into ashes and dust!

PROBLEMS TO THINK ABOUT

Here and now you are urged to procure a copy of *Science*, issue of August 22, 1941, so as not to miss Dr. Walter B. Cannon's article entitled "Problems Confronting Medical Investigators." A clearer and more penetrating analysis of current problems facing the medical and public health professions has not appeared heretofore. Dr. Cannon "takes stock" of the progress of medical science—pointing particularly to the "beneficent triumphs" scored over typhoid fever, diphtheria, tuberculosis,

and the increasing measure of control over many other human ailments. It is of the unsolved problems, however, that Dr. Cannon writes with special insight and understanding. Particular emphasis is placed upon the problem of senescence and the disorders associated with it, many of which are not fully understood. Since the stresses which affect the nervous system are on the increase, Dr. Cannon contends that the problems of psychiatry urgently demand the labors of many well disciplined investigators for research in this field. Likewise, the frontiers of knowledge must be pushed forward in the fields of pharmacology, heredity, and sociology. Dr. Cannon also makes a plea for the preservation of freedom for research and for young men to fill the ranks as medical investigators. An interesting phase of this analysis has to do with the physician as "a family health officer" who would be "a teacher of his people in proper diet, proper hygiene, and in ways of avoiding conditions which induce disease."

This excellent article brings into sharp focus many other problems that deserve attention. Dr. Cannon's summary of the needs that must be met in medicine and public health is a challenge to everyone interested in the conservation of life. Put this article on your compulsory reading list!

ANY SLOGANS TODAY?

We submit that public health is always in need of new slogans. This suggestion is made partly because two requests have recently been received from health officers for statements—"along the lines of a slogan"—that could be used on posters for display in health department reception rooms. Moreover, these are days when slogans are popular. The publicity materials used in the national defense program carry slogans, as do current advertising appeals. Would it not be a good idea to coin a slogan expressing the aim or the spirit or the motive of public health that all health agencies might use? There is no doubt that slogans appeal to the public—witness the many famous examples that advertisers have employed for years in popularizing their products.

What is a slogan? An authority on the subject gives this definition: A slogan is a magic combination of words with remembrance value. The word "slogan" comes from Scotland where it is literally a battle cry. A typical slogan of the Highland clans is "Scotland Forever!" The British call slogans "haunting phrases," and that country is now rallying millions to its cause through such slogans as: "There will always be an England!" and "Thumbs up!" One of the best trade slogans yet written is that familiar one: "Say it with flowers."

A slogan must command or suggest, and alliteration helps in establishing its "remembrance value." Watch the newspapers if you are interested in composing a slogan, for good headlines are often written in slogan style.

Could you suggest an appropriate slogan for public health? We have a notion that a slogan which really catches the spirit of our profession could be used to great advantage on many types of publicity material. We propose no contests or prizes, but if any ideas occur to you—send them to the editors of "Credit Lines." Perhaps your suggestion might eventually be formally adopted as the slogan of America's public health movement!

MAGAZINE ARTICLES

Current popular magazine articles on health or of medical import:

"Uncle Sam Defines a Good Diet." E. V. McCollum, Ph.D. *McCall's Magazine*. September, 1941.

"There Is Hope for Children in Infantile Paralysis Epidemics Today."

Ross T. McIntire, M.D. *McCall's Magazine*. September, 1941.

"A Home Chart of Medical Tests." Compiled by leading medical authorities. *Good Housekeeping Magazine*. September, 1941.

"Do You Have Headaches?" Helen Furnas. *Ladies Home Journal*. September, 1941.

"Plan for Parenthood." Gretta Palmer. *Ladies Home Journal*. September, 1941.

"Laymen and Alcoholics." Genevieve Parkhurst. *Harpers Magazine*. September, 1941.

"The Attack on Brainstorms." George W. Gray. *Harpers Magazine*. September, 1941.

"Outwitting the Common Cold." Ishbel Ross. *Coronet Magazine*. September, 1941.

(The above is not presented as a complete list and the articles are not necessarily recommended.)

SOME NOTES AND SOME QUOTES

This editorial partnership (and especially one-half of it!) points with justifiable and understandable pride to the record of the Davidson County Health Department, Nashville, Tenn., in the *Rural Health Conservation Contest*. Under the direction of Dr. John J. Lentz, the department has won an annual award each year since the contest was inaugurated in 1934. Other county health units that can boast of a similar record of achievement are Pike and Lauderdale Counties, Miss., and El Paso County, Tex. These health departments deserve a twenty-one gun salute on their notable records of achievement and service. . . . An informative and practical article on *printed materials* in the health field is featured in the September, 1941, issue of the *Bulletin of the National Tuberculosis Association*. The article, entitled "Competition Keen for Public Interest," is by William S. Henderson, an authority on graphic arts. The author gives expert advice on such topics as layout, pictures, and copy appeal. . . . A *book* to enter on your "must" reading list is a new volume by August A. Thomen, M.D., called "Doctors Don't Believe It—Why Should You?" In concise question and answer form, numerous medical fallacies are exposed and the corresponding facts in each case are set forth. The book contains excellent selections on the venereal diseases, cancer, colds, allergies, and many other topics. . . . An outstanding example of the effective use of *pictographs* (pictorial statistics) is found in the July issue of *Sales Management Magazine*. . . . Readers who enjoyed George W. Gray's *book* "The Advancing Front of Science" will be delighted to know that Mr. Gray has a second volume in preparation called "The Advancing Front of Medicine," which is scheduled for publication in the near future. . . . Is that *speech* you are going to deliver at the Annual Meeting bothering you? A good prescription for your worries can be found in a book by William Freeman and Quincy Howe entitled "Hear, Hear!" This book contains sound advice on grammar, involved sentences, figures of speech, jokes, and delivery. . . . *Quotations* of the month—from Dr. W. P. Shepard: "Never lose faith in the cause of public health. It is the most tangible and the most effective of all great movements for social betterment"; from Dr. Edward E. Strecker: "The chronic alcoholic is the person who cannot face reality without alcohol, and yet whose adequate adjustment to reality is impossible so long as he uses alcohol." . . . The recent call, sounded by Surgeon General Parran, for 50,000 well qualified young women to enroll in the nation's accredited schools of nursing deserves the support of all public health workers. An acute shortage of professional *nurses* exists today and should the country become actively

involved in a shooting war, the need for registered nurses would mount astronomically. Public health workers throughout the country are in a position to advise many young women regarding nursing careers. As the nation-wide recruitment program to enroll thousands of high school and college graduates gets under way, you can do your part by advising young women as to requirements, employment possibilities, and other phases of the profession. . . . *The Daily Worker,* communistic New York newspaper, recently printed a "health advice" article entitled "Worms in the Intestines." More "boring from within" policy? . . . *A School of Nutrition,* the first of its kind organized, is to be opened by Cornell University. In addition to training nutrition specialists, instruction will be given to students preparing for institutional management and to chemical engineers and others training for various types of work dealing with handling and utilizing foodstuffs.

BOOKS AND REPORTS

Infantile Paralysis. *A Symposium Delivered at Vanderbilt University, April, 1941—New York: National Foundation for Infantile Paralysis,* 1941. 239 pp. Price, $1.25.

Since publication in 1932 of a comprehensive review of the literature on poliomyelitis by the International Committee, contributions important to the understanding of the disease have been made. To recapitulate the advance in knowledge, the National Foundation for Infantile Paralysis sponsored the six lectures which are brought together in this volume.

Dr. Paul F. Clark, Professor of Bacteriology at the University of Wisconsin, opens the series with a historical resumé of the descriptions of the disease, its manner of occurrence, the nature and distribution of the causative agent, the character of susceptible host reactions, the ideas and inferences regarding sources and modes of transmission, and of treatment. Dr. Charles Armstrong, Senior Surgeon at the National Institute of Health, U. S. Public Health Service, tells what is known about the virus of poliomyelitis and what has been accomplished in adapting the Lansing strain to the cotton rat and the white mouse. Dr. Thomas M. Rivers, Director of the Hospital of the Rockefeller Institute for Medical Research, discusses current conceptions of the pathogenesis of the disease, of the nature of human resistance, of the immunological and serological phenomena, and then critically reviews the disappointments which have accompanied attempts to develop a safe, efficient vaccine and to use immune serum in prophylaxis or treatment. Dr. Ernest W. Goodpasture, Professor of Pathology at Vanderbilt University, describes the evolution of interpretations based upon histological studies of human and animal material. He concludes with acceptance of interpretations advanced as a result of the brilliant researches of Fairbrother and Hurst, Schultz and Gebhardt, Faber, and Howe and Bodian, that the pathological phenomena are best explained as primarily due to the spread of the virus along axones, with a resultant damage and destruction of ganglion cells; and that the patterns of spread in the grey matter and the cord are determined by the pathway of entrance and the differential susceptibility of types and groups of nerve cells. Dr. John R. Paul, Professor of Preventive Medicine at Yale University, reviews what he terms the clinical, in contrast to the statistical, epidemiology of poliomyelitis. He discusses the significance of recent observations regarding the frequency of subclinical and abortive infections, and of the recovery of the virus from stools and from sewage. He then emphasizes the increased prevalence of the disease in summer, in the temperate zones and in rural areas, and the association of small epidemics with rivers and streams which have been heavily polluted with sewage. Obviously the validity of these generalizations is dependent upon adequate statistical analyses. Data available in the literature afford some support for the first two, but to accept as significant the association of occurrence of poliomyelitis with rural areas and polluted

streams is to disregard abundant evidence to the contrary.

The last lecture in the series presents the point of view of a practising orthopedic surgeon, Dr. Frank R. Ober, Clinical Professor of Orthopedic Surgery at Harvard University. It is a topical outline of what he considers to be good practice in the care of cases of poliomyelitis to minimize deformity, to insure maximum return of function, and to repair by operative procedure.

A valuable bibliography of 575 selected references is appended.

KENNETH F. MAXCY

Air Raid Precautions — *First American Edition—Brooklyn: Chemical Publishing Co., Inc.,* 1941. Price, $3.00.

A department on air raid precautions was set up in Great Britain in 1935. In 1937 an act of Parliament made it the responsibility of local authorities to insure that adequate measures for protection of the civil population were taken.

The Chemical Publishing Co. has put together in one volume for American readers ten official British reports on air raid precautions giving the procedures and methods used in the past two years. Detailed instructions and specifications are presented in these reports regarding the organization and practices for the various services required in air raid activities, such as local communication service, clearance parties, air wardens' service, structural defense, building protection, respirators, etc. Of particular interest to health officials in this country who may under future eventualities be called upon for air raid service are the sections on first aid and rescue parties, requirements for shelters, detection of poisonous gases, and decontamination services. The discussion on shelter requirements is rather extensive and includes observations and standards on floor space needed, on time for entry with different widths of openings, the ventilation problem, and protection from gases.

The bringing together of this material into one convenient volume should be of great value to the civilian defense committees now being established throughout this country. Although the procedures adopted in Britain were drawn to meet their special conditions and under great pressure, a study of these reports should make our own preparations more efficient. SOL PINCUS

The Wonder of Life—How We Are Born and How We Grow Up—*By Milton I. Levine, M.D., and Jean H. Seligmann. New York: Simon and Schuster,* 1940. 114 pp. Price, $1.75.

This concise little book purports to be written primarily for preadolescent and adolescent children, but the reviewer must confess that after reading it from cover to cover he felt it merited a much wider distribution. It is written in a direct, clear-cut style, in language anyone can understand, and deals with such a fundamental subject that it might well be placed in the hands of teachers and parents and made a reference book for classes of prospective mothers and fathers. The illustrations are well chosen and bring out clearly the matter presented in the text.

The glossary at the end clarifies some of the words which might be misunderstood by the younger readers although scarcely necessary for the mature.

RICHARD A. BOLT

Mental Disease and Social Welfare—*By Horatio M. Pollock. Utica, N. Y.: State Hospitals Press,* 1941. 237 pp. Price, $2.00.

Out of a long experience in viewing the mentally ill from an especially strategic perspective, Dr. Pollock gives us the conclusions of years of observation and statistical analysis. He deals with questions that the public are ask-

ing, or sometimes the unwarranted conclusions at which the public has arrived. Of course, he is limited in his analysis by unsurmountable limitation of data. In some states the terms hospital admission, commitment and discharge mean quite different things socially from other states, and from hospital to hospital diagnostic conclusions are arrived at on different grounds. Between rural and urban, and rich and poor similar differences occur and one must always realize that the corresponding reservations have to be associated with conclusions drawn from these data. These variables are sociological phenomena of immense importance to public health generally. Dr. Pollock emphasizes this as follows:

"The variations have great significance and should be taken into account by anyone attempting preventive work. Mental disease in the future will be largely a city problem. Syphilis and alcoholism can and should be eradicated. But aside from these it appears that the complexities of our large cities require more adjustments than many individuals are equipped to make. To better the situation it will be necessary to strengthen the individual and to lessen the stresses of city life. To accomplish this task will require the united efforts of parents, teachers, physicians and social and research workers on the one hand; and of employers, industrial leaders, city managers and economists on the other."

The chronicity of much mental disease magnifies some adverse community conditions that would escape detection in the case of acute medical problems, but which are none the less significant. The book may be read with special value, therefore, by the epidemiologist. It is of importance to public health that arteriosclerosis is shown to be leaping ahead as a factor, while other mental disorders show slight or questionable increases. It is also significant that about 5½ per cent of persons at birth may be expected to enter a mental hospital at some time, for these cases are the most aggravated cases. They have often been public health problems before admission. They stand for a large group of partial breakdowns that never reach the hospital, but continue to be a concern of the public. It is doubly significant that general paralysis shows increasing recovery and improvement as against a decreasing mortality, for it points on the one hand to the importance of follow-up and early treatment of syphilis, and on the other to potential problems associated with half functioning arrested cases that are discharged back to the community.

Dr. Pollock concludes: "The large number of patients restored to normal community life and the relatively small number that commit criminal offenses indicate that the hospital methods are well planned and are producing beneficial results to the patients and communities served."

GEORGE S. STEVENSON

Outlines of Industrial Medical Practice—*By Howard E. Collier, M.D. (Edin.) Ch.B. Baltimore: Williams & Wilkins,* 1941. 440 pp. Price, $5.00.

This book covers a wide variety of subjects that embrace practically everything that can be said to have a relationship to industrial hygiene and industrial medicine. It will undoubtedly be a useful book for orienting the general practitioner and the industrial physician in England, but, naturally, certain portions have but little application in the United States. It should be particularly helpful for the small industry which does not have a well organized medical service.

The author has had a wide experience which is apparent, as one reads this book, in the comments and observations which he contributes from time to time and which are based on sound common

sense, and a first class medical background. The chapters on ventilation and lighting are good and are applicable anywhere.

Part III on industrial psychology is both good and bad. The chapter on industrial fatigue and accident proneness is especially good. In a straightforward manner, Dr. Collier draws attention to the underlying psychological factors causing accidents. However, there would be much disagreement with his sweeping statement that it is unprofitable to distinguish between a neurosis and a psychosis. It would probably be difficult for the works doctor to follow much of the material in Part III unless he had a previous knowledge of the subject.

Part IV, dealing with occupational diseases is comprehensive, accurate, and useful.

Part V, dealing with industrial forensic medicine, would apply only in Great Britain.

All in all, this is an ambitious and a useful book with a wealth of material and detail such as is not usually available in one volume.

A. J. LANZA

Employee Training in the Public Service—A report by the Committee on Employee Training — *By Milton Hall. Chicago: Civil Service Assembly of the United States and Canada,* 1941. 172 pp. Price, $2.50.

The Civil Service Assembly, an association of public agencies, officials and private citizens interested in public personnel administration little known to many public health workers, has contributed in this small volume meat for much discussion in any public health agency. For here are brought together the fundamental principles and attitudes, together with suggestions for a practical program, whereby employees may be helped " to gain effectiveness in their present or future work through the development of appropriate habits of thought and action, skills, knowledge, and attitudes." Who doubts that any efficient executive will feel that his organization could not profit if such improvement were possible?

Some may argue that public health is a specialized kind of public service and therefore demands such a specialized kind of training that a volume prepared by those not trained in the field can have little value. But the job of teaching a family the value of diphtheria immunization or of persuading a restaurant owner to put in a mechanical milk dispenser is not essentially different from teaching a farmer how to prevent Bang's disease or persuading a civil service bureau to install new machinery to do its tabulating work. And every public agency has similar problems in answering inquiries from citizens, in finding the time, the place, and the instructor to teach employees new methods—analogies could be continued indefinitely. These are common problems in all agencies, and this volume, based on the experience of many efforts to train employees in the public service, will be of value to the administrator interested in so-called in-service training of his staff. The book was assembled by a committee studying the subject but has been sufficiently well edited to leave few marks of its joint authorship.

Specific chapters deal, among other topics, with ascertaining the need for training, instruction, where and by whom, selecting and developing content, training methods, and evaluation.

LEONA BAUMGARTNER

Food Analysis—*By A. G. Woodman (4th ed.) New York: McGraw-Hill,* 1941. 607 pp. Price, $4.00.

Over the period of 26 years intervening between the first and the present edition of this book, there has been a tremendous amount of published

data and a great deal of this has represented little actual improvement in basic analytical procedure. The sorting of the really important data from those which are not so pertinent has been a hard task.

The book covers the typical foods that involve basic methods of analysis and is particularly embracive in the matter of fats, oils, carbohydrate foods and alcoholic beverages. One engaged in either of these fields will have recent additions such as the Fitelson Test for Teaseed Oil in Olive Oil. The Penniman, Smith, and Lawshe method of determining fusel oil in distilled liquors, and other valuable aids are recorded in this treatise.

It is unfortunate that the author did not include more detail in some of the procedures, even at the expense of a larger volume. It is to be noted that in the section pertaining to pasteurized milk there is not included the very valuable and decisive phosphatase test, used by many of the milk agencies throughout the United States and which was devised in the laboratory of the Health Department of the City of New York, which depends upon a modification of the basic Kay and Graham test. This can be accomplished by using only one hour of incubation in the laboratory or 15 minutes in the field and then by using the very sensitive Gibbs reagent for the detection of the liberated phenol. (See this *Journal*, October, 1940, p. 1206; and Proposed Phosphatase Methods—*Standard Methods for the Examination of Dairy Products*—7th Edition—1939.)

Under the general provision relative to the detection of preservatives, particularly with reference to formaldehyde, it is regretted that mention was not made of the valuable U.S.P. test for methyl alcohol depending on the oxidation of this alcohol to formaldehyde, which is described in detail under alcoholic foods, p. 508.

In spite of the statement in the preface, that this book was intended primarily for the undergraduate student rather than for the practising chemist, the splendid compilation of authentic data, methods of analysis, and the very reasonable price, dictate that this edition be on the shelf of everyone interested in problems of food analysis.

REGINALD MILLER

School Health Services—*By W. Frank Walker, Dr.P.H., and Carolina R. Randolph. New York: Commonwealth Fund*, 1941. 172 pp. Price, $1.50.

The work of the physician, nurse, and dentist in the schools has been "set in its ways" for so long that it is encouraging to find questioning, investigation, and a realization of new objectives that lead to changes in practice. As the authors say: "Too frequently its concern begins and ends with routine periodic examinations of children and pointing out of defects without consideration of the interest and ability of the community, professional and otherwise, to provide adequate treatment."

This is an extensive study of the original service records accumulated during a six year period in six counties of Tennessee. With special funds much more analysis was made of the records than is practicable in the usual health or education department program. They show definitely more vision, dental, and tonsil defects corrected when the parent was present at the examination than without the parent. They find some relationship with preschool supervision suggesting that the preschool service influences the correction of dental and throat defects. In fact, they have pointed out about all the significant information that can be obtained from service records. Their analyses of records of tonsil and nutrition defects illustrate the wide variation that occurs in subjective judgments and

suggest the inadequacy of such reports in giving a real picture of administrative procedures or accomplishments.

This report is particularly important in pointing out the limitations of rural programs that may become preoccupied with routine examinations. While it is not clear that all the recommendations come directly from the analysis of the records, they emphasize educational objectives that are in advance of common practice, and procedures that are in the opinion of the reviewer generally practical and sound.

HAROLD H. MITCHELL

Die Bakteriologie der Salmonella-gruppe—*By F. Kauffmann. Copenhagen: Einar Munksgaard,* 1941, 393 pp.

While it is stated in the preface that the book is not intended as a historical review nor as a textbook, in it is reviewed all the literature pertinent to the classification of Salmonella, and it will be found an invaluable guide for the worker undertaking the differentiation of paratyphoid bacilli by modern methods. The subject is considered under the following headings: definition and nomenclature, cultural methods of type determination, cultural characteristics of the types, serological methods of type determination, serological characteristics of the types, practical diagnosis of Salmonella infections, pathogenesis and epidemiology, and prevention of Salmonella infections. A clear and detailed account of the biochemical and serological methods used in Salmonella typing is given and the characteristics and occurrence of 107 serological types are described. Particular attention is given the variational phenomena (R and S, H and O, phase, and form variations) whose recognition is essential to successful type determination. Of interest is the orientation of a number of strains of coliform bacilli in the Kauffmann-White classification, indicating that the method of antigenic analysis may be applied profitably to bacilli of that group.

In conclusion it is pointed out that the majority of the practical problems connected with this group of organisms may be regarded as solved. The etiology and epidemiology of enteric infections is understood and efficient methods of isolation and classification of the bacilli are at hand. The prevention of these infections remains only a matter of organization, technic, and financial support. There remain to be solved many problems of scientific interest, the most important of which are: the determination of the complete antigenic formulae of Salmonella types; the isolation of partial antigens and the determination of their rôle in immunity; further study of form and phase variations; the extension of our knowledge of the relationships of Salmonellas to members of other genera; further work on the toxins of the enteric bacilli; and the chemical study of Salmonella antigens.

The book is written in the author's usual clear and concise style and is attractively and accurately printed.

P. R. EDWARDS

Controlled Fertility—*By Regine K. Stix and Frank W. Notestein. New York: Williams & Wilkins,* 1940. 201 pp. Price, $3.00.

An evaluation of clinic service dealing with patients of the oldest and largest birth control clinic in the United States, this book has great merit in sound, scientific approach to the problem of effectiveness of methods of contraception. It is equally good in its clean-cut analysis of the variables in a clinical study, such as sampling, group characteristics, reliability of data, noncontraceptive experience, effectiveness of untutored and tutored efforts at contraception, and such other factors as may influence the results obtained. It is valuable for workers in the field

of contraception and should be equally valuable on the ground of its approach to the problem for workers in other clinical fields, who wish to use accurate methods in evaluating clinical procedures.

The authors give a detailed and careful analysis of the contraceptive experience of a large number of patients before and after clinic attendance. The group is adequately broken down for the purposes of study, and the various group experiences are discussed *not* on the basis of simple success and failure—a yardstick too frequently employed and as often misleading—but on the basis of exposure and carefully determined as well as standardized rates. The effectiveness of methods of contraception, tutored and untutored, is shown together with the various factors that may have operated to produce the results.

For the individual primarily interested in the public health aspect of the problem, the chapters on the Birth Control Clinic and Public Health and Birth Control and Population Trends should be read. For clinic workers and instructors in the field of contraception the entire book offers a great fund of information. Workers in this field should pay particular attention to the discussion of rates, especially in Appendix III, the Computation of Pregnancies Rates. This offers a clear simple method of calculation, which could well be incorporated in statistical analysis of contraceptive procedures.

W. E. BROWN

Your Teeth. Their Past, Present, and Probable Future—*By Peter J. Brekhus, B.A., D.D.S. Minneapolis: University of Minnesota Press,* 1941. 247 pp. Price, $2.50.

This book is timely. It appears when the country is particularly conscious of the part played by dental diseases in the physical unfitness of many young men otherwise eligible for military service.

The author states frankly that the book is "a challenge to dentists to look upon their problems from a broader point of view" than has been the case during the hundred years just passed, since the establishment of the first dental school. The distribution, behavior, treatment, and probable end result of the more common dental diseases are discussed. A comparison is made of dental caries susceptibility in civilized and primitive man, and between man and experimental animals. As is quite proper, the problem of dental caries etiology, incidence, prevalence, and treatment receives the greatest attention. The many conflicting opinions, in and out of the dental profession, regarding the cause of caries are impartially presented. The two principal theories, the bacterial and the dietary deficiency, are most fully developed.

The author at one point states that one of the weaknesses in the nutritional theory is that the wealthy "whose diet is certainly not deficient in any of the elements known to be essential to general health are as much afflicted with dental ills as are the poorer classes." There may be some doubt that the possession of material wealth is an indication of an understanding of the fundamentals of proper nutrition.

The discussion of the several theories seems to lead one to the conclusion that the leaders of the different schools of thought should get together and examine objectively the varying evidence and viewpoints. It may well be that no one theory is completely wrong or wholly correct.

The concluding chapter, "How We Can Save Our Teeth," will probably be of most interest to the general reader and to the health official who is responsible for the appropriation of public funds for the prevention and con-

trol of dental diseases. The plans for providing dental services to the entire school population of the Scandinavian countries and New Zealand are discussed. Dr. Brekhus is particularly impressed by the success of the State controlled clinics of New Zealand in saving the teeth of school children.

The dental problem among Americans is developed. According to one of the authorities cited, the cost of placing the mouth of the "average American" of 1939 in a healthy condition would take $53. Even if this estimate is discounted by 50 per cent, the resulting cost to care for the present population would amount to the astronomical figure of 3½ billion dollars. The hopelessness of caring for the problem in such a manner is recognized and probably leads to the concluding recommendation, "The chief need in dentistry at present is that scientific research be fostered and encouraged, for only by that route may we hope for a satisfactory solution of our problem."

This book is an important contribution toward stimulating a greater interest in the problem of dental diseases and their relation to public health. A useful and extensive bibliography, both scientific and popular, accompanies each of the eleven chapters. BION R. EAST

A Textbook of Dietetics—*By L. S. P. Davidson and Ian A. Anderson. New York: Hoeber,* 1941. 324 pp. Price, $4.25.

Despite its uninspired title, this book is by no means just one more contribution to therapeutic dietetics from the standpoint of the clinician. On the contrary, the two Scottish authors, both of whom according to Sir John Boyd Orr's foreword are physicians who have done original research on nutrition in relation to health and disease, have also produced an original text, based on lectures given to medical students at the University of Aberdeen.

The book attempts to equip the general practitioner to give sound advice on the relation of diet to the maintenance of health and to undertake with confidence the dietetic treatment of disease. To that end the customary sections on diet in health and disease are preceded by a brief general survey of the nation's diet and a concise "but for clinical purposes complete account of the physiology of nutrition." Economic considerations are never lost sight of; for each disease there are given two samples of daily diets, one for the patient with a very limited income.

The sections on therapeutic diets carry out the authors' conviction that the scientific principles underlying all dietary recommendations must be stated since "no dietetic restriction should be imposed that cannot be justified on biochemical, physiological, or clinical grounds." Moreover, the dietetic treatment of each disease is considered in relation to the associated therapy and hygiene so that dietetics appears in true perspective as a therapeutic measure.

To treat nutrition and dietetics so broadly in a book of modest size has necessitated careful selection of facts that are both well established and of practical importance. These two men must like to teach.

MARJORIE M. HESELTINE

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Children with Caries—Among the 127 children studied over the period of one year, a close correlation was found between dental caries activity and the number of *L. acidophilus* in the saliva. Other properties of the saliva revealed no significant relation to the amount of caries.

ARNOLD, F. A., and MCCLURE, F. J. A Study of the Relationship of Oral *Lactobacillus acidophilus* and Saliva Chemistry to Dental Caries. Pub. Health Rep. 56, 30:1495 (July 25), 1941.

When Luftwaffe Blitzes—Recorded here are the steps taken to provide an emergency maternity service for expectant mothers evacuated from London. Pray God you will not be faced with a similar problem but, if ever you are, you will find some suggestive ideas in this paper. It is somehow reassuring to glance over all the brave articles in this issue, for they indicate that, come what may, public health administration seems bound to carry on.

BANKS, A. L., and NORMAN, L. G. Emergency Maternity Homes. Public Health. 54, 10:179 (July), 1941.

Whooping Cough Prophylaxis—Two 1 cc. doses of alum-precipitated pertussis vaccine, at a 4 week interval confer real protection against whooping cough.

BELL, J. A. Pertussis Prophylaxis with Two Doses of Alum-Precipitated Vaccine. Pub. Health Rep. 56, 31:1535 (Aug. 1), 1941.

Fifty-One Ways to Prevent Home Accidents—Do you need copy for an article, a pamphlet, or a talk on home safety? Then here is the last word. It may be assumed that the distinguished subcommittee who prepared the "do's" and "don'ts" will be glad to have you lift their excellent ideas without credit.

BRITTEN, R. H., *et al.* Safety in the Home. Subcommittee on Home Safety, Committee on the Hygiene of Housing. New Haven, Conn. Pub. Health Nurse. 38, 8:455 (Aug.), 1941. Reprints—single copies free from the National Organization for Public Health Nursing, 1790 Broadway, New York, N. Y.

A Better Break for Premies—Failure to provide and administer adequate care for premature infants accounts for the rather discouraging showing of the neonatal death rates. What the hospital can do to improve the situation is discussed.

DUNHAM, E. C. The Responsibility of the Hospital for the Care of the Premature Infant. Med. Woman's J. 48, 7:203 (July), 1941.

Caffeine, Benzedrine, Metrazol, *et al.*—Are there any aids that will increase work capacity, strength, and speed of movements, delay fatigue, increase endurance? You will find much of interest in the answer to these questions. An inclusive bibliography is appended.

KARPOVITCH, P. V. Erogenic Aids in Work and Sports. Research Quarterly (Supplement), 12, 2:432 (May), 1941.

Lest We Forget—Routine postmortems upon a large hospital group revealed pulmonary tuberculosis in a quarter of all. We tend to forget that the disease in older persons is still common and may be an obstructive feature in our control program.

FREEMAN, J. T., and HEIKEN, C. A. The Geriatric Aspect of Pulmonary Tuberculosis. Am. J. M. Sc. 202, 1:29 (July), 1941.

As Others See Our Work—A sociologist looks at public health and

presents some stimulating speculations. You'll enjoy this view as seen by another scientist.

GILLETTE, J. M. Perspective of Public Health in the United States. Sci. Month. 53, 3:235 (Sept.), 1941.

Tuberculin Tests — Tuberculin patch tests though having a limited usefulness cannot replace in reliability the well established Mantoux test, concludes this researcher.

KERESZTURI, C. Present Status of the Tuberculin Patch Test. Am. Rev. Tub. 44, 1:94 (July), 1941.

Dick Reactions vs. Circulating Antibodies—Excessive doses do not immunize people who fail to respond to the usual doses of scarlet fever antitoxin. Antitoxin formation occurs more readily in those persons who show some slight amount of circulating antitoxin before the injections were begun. These are some of the findings of this study of scarlet fever prophylaxis among nurses.

KOLCHIN, B. S., and KLEIN, I. F. Immunity in Scarlet Fever. J. Immunol. 41, 4:429 (Aug.), 1941.

Sources of Health Information—One hundred and fifty agencies are listed from whom supplementary health educational materials may be obtained. If you need pamphlets or films or exhibits on a specific subject this useful paper will tell you where to get it.

MINER, N. M., and STEINHANS, A. H. Sources of Supplementary Materials for Health Instruction. Research Quart. 12, 2:266 (May), 1941.

Trichinosis in the Big City—In a hundred bodies of persons dying suddenly or by violence 22 cases of trichina infestations were discovered. This indicates that New Yorkers are enjoying an even greater incidence of infestation than the denizens of most of the other cities from which recent reports have come.

MOST, H., and HELPERN, M. The Incidence of Trichinosis in New York City. Am. J. Med. Sc. 202, 2:251 (Aug.), 1941.

"Leave 'Em Where They Lie"—This excellent advice to nurses about the examination of supposedly injured persons should be read by all health workers who assume the rôle of first aiders. Make sure that the patient is moved only if it is less dangerous to do that than to leave him where he is; this should be engraved on every prospective Good Samaritan's heart.

PENDLETON, R. C. The Nurse and First Aid. Am. J. Nurs. 41, 8:916 (Aug.), 1941.

Eyes and Vitamins—Young children on a diet which had a vitamin A content below 100 units per kilo of body weight developed follicular conjunctivitis. Vitamin A (without D) cured the condition.

SANDELS, M. R., *et al.* Follicular Conjunctivitis in School Children as an Expression of Vitamin A Deficiency. Am. J. Dis. Child. 62, 1:101 (July), 1941.

A Chemist Discusses the Viruses—To a chemist it appears that there may be no sharp line of division between molecules and organisms and that the viruses may be the missing link. All the chemical study that has been lavished on these still unknown things is told in absorbing detail.

STANLEY, W. M. Chemical Properties of Viruses. Sci. Monthly. 53, 3:197 (Sept.), 1941.

How to Choose an Employee—If ever it becomes your job to construct an examination to measure the information of candidates for a public health position, you will find a great deal of help in this discussion of the preparation of tests.

UPHOFF, H. F., and RICHARDSON, M. W. The Construction of Objective Tests. Pub. Health Nurs. 33, 8:449 (Aug.), 1941.

BOOKS RECEIVED

PERSONAL HYGIENE APPLIED. By Jesse Feiring Williams. 7th ed. rev. Philadelphia: Saunders, 1941. 529 pp. Price, $2.50.

GOULD'S MEDICAL DICTIONARY. Edited by C. V. Brownlow. 5th ed. rev. Philadelphia: Blakiston, 1941. 1528 pp. Price, Plain $7.00, Thumb Indexed $7.50.

LABORATORY GUIDE IN ELEMENTARY BACTERIOLOGY. By M. S. Marshall. Philadelphia: Blakiston, 1941. 244 pp. Price, $1.75.

FUNCTIONAL HEALTH TEACHING SYLLABUS. By Lynda M. Weber. New York: Ginn, 1941. 159 pp. Price, $1.75.

TUBERCULOSIS NURSING. By Grace M. Longhurst. Philadelphia: Davis, 1941. 280 pp. Price, $3.00.

HOW TO HELP YOUR HEARING. By Louise M. Neuschutz. New York: Harper, 1940. 179 pp. Price, $2.50.

HANDBOOK OF COMMUNICABLE DISEASES. By Franklin H. Top. St. Louis: Mosby, 1941. 682 pp. Price, $7.50.

MICROBES WHICH HELP OR DESTROY US. By Paul W. Allen, D. Frank Holtman and Louise Allen McBee. St. Louis: Mosby, 1941. 540 pp. Price, $3.50.

SANITARY ENGINEERING. By Harry G. Payrow. Scranton: International Textbook Co., 1941. 483 pp. Price, $4.00.

THE VITAMIN CONTENT OF MEAT. By Harry A. Waisman and C. A. Elvehjem. Minneapolis: Burgess, 1941. 210 pp. Price, $3.00.

SOCIETY AND MEDICAL PROGRESS. By Bernhard J. Stern. Princeton: Princeton University Press, 1941. 264 pp. Price, $3.00.

NASSAU HEALTH IN 1940. Second Annual Report of The Nassau County Health Department for the Year Ending December 31, 1940. Earl G. Brown, M.D., Commissioner, Mineola, Long Island, N. Y.

ALIMENTACION Y NUTRICION EN COLOMBIA. By Professor Jorge Bejarano. (Spanish) Washington: Pan American Sanitary Bureau.

MEDICAL WORK OF THE KNIGHTS HOSPITALLERS OF SAINT JOHN OF JERUSALEM. By Edgar Erskine Hume. Baltimore: Johns Hopkins Press, 1940. 371 pp. Price, $3.00.

LYMPHATICS, LYMPH, AND LYMPHOID TISSUE. By Cecil Kent Drinker and Joseph Mendel Yoffey. Cambridge: Harvard University Press, 1941. 406 pp. Price, $4.00.

LANGE'S HANDBOOK OF CHEMISTRY. Norbert Adolph Lange, Compiler and Editor. 4th ed. Sandusky: Handbook Publishers, 1941. 1603 pp. Price, $6.00.

NURSING IN PREVENTION AND CONTROL OF TUBERCULOSIS. By H. W. Hetherington and Fannie Eshleman. New York: Putnam, 1941. 316 pp. Price, $3.00.

A SYMPOSIUM ON HUMAN MALARIA, WITH SPECIAL REFERENCE TO NORTH AMERICA AND THE CARIBBEAN REGION. Forest Ray Moulton, Editor. American Association for the Advancement of Science, Washington, D. C., 1941. 398 pp. Price, $5.00.

PRINCIPLES OF MICROBIOLOGY. By Francis E. Colien and Ethel J. Odegard. St. Louis: Mosby, 1941. 444 pp. Price, $3.00.

DISEASES OF THE NAILS. By V. Pardo-Castello. 2d ed. Springfield: Thomas, 1941. 193 pp. $3.50.

FACTORS AFFECTING THE GERMICIDAL EFFICIENCY OF HYPOCHLORITE SOLUTIONS. By A. S. Rudolph and Max Levine. Iowa Engineering Experiment Station, Ames, Iowa, 1941. 48 pp. Free.

VISUAL PROBLEMS OF SCHOOL CHILDREN. By Emmett A. Betts and Agnes Sutton Austin. Chicago: Professional Press, 1941. 80 pp. Price, $1.00.

TRAINING AND EFFICIENCY. An Experiment in Physical and Economic Rehabilitation. By E. Jokl, E. H. Cluver, C. Goedvolk and T. W. De Jongh. Johannesburg: South African Institute for Medical Research, 1941. 188 pp.

ASSOCIATION NEWS

70TH ANNUAL MEETING, ATLANTIC CITY

TOO late for announcement in the Preliminary Program or in the September *Journal*, came news that the British Ministry of Health has appointed three distinguished delegates to attend the 70th Annual Meeting at Atlantic City, October 14–17. They are: Sir John Orr, Director of Rowett Research Institute, Aberdeen, Scotland; Sir Wilson Jameson, Chief Medical Officer of the Ministry of Health, London, England; Professor James Mackintosh, Professor of Public Health, University of Glasgow, Scotland.

The Program Committee has arranged a special session on the evening of Wednesday, October 15, so that delegates will have the opportunity to hear the last word on England's efforts for health protection in the civilian and armed forces.

The Program Committee is happy to announce that, through the good offices of the Coördinator on Inter-American Affairs and on invitation from the Pan American Sanitary Bureau and the Association, invitations have been addressed to the executive directors of federal health departments of the 20 Central and South American republics to attend the Annual Meeting. The invited representatives, many of whom have already accepted, are:

Argentina: Dr. Hugh D'Amato, Secretary of National Department of Health

Bolivia: Dr. A. Ibánez Benavente, Minister of Public Health

Brazil: Dr. J. Barros Barreto, Director General of Public Health

Chile: Dr. Salvador Allende, Minister of Health and Social Welfare; Dr. Eugenio Suárez, Director of Health; Dr. Alegandro Flores, Advisor to Minister

Colombia: Dr. Roberto Franco, Counselor of Colombian Embassy

Costa Rica: Dr. Mario Luján, Secretary of Public Health and Social Welfare

Cuba: Dr. Domingo Ramos, Minister of National Defense; Dr. Sergio García-Marrus, Minister of Health; Dr. Felix Hurtado, Undersecretary of Health; Dr. Carlos E. Finlay, Vice-President of the American Public Health Association

Dominican Republic: Dr. Wenceslao Medrano, Minister of Health and Social Welfare

Ecuador: Dr. J. A. Montalván, Assistant Director of Health

El Salvador: Dr. Victor Sutter, National Director of Health

Guatemala: Dr. C. Estévez, Director General of Public Health

Haiti: Dr. Rulx Léon, Former Undersecretary of Public Health

Honduras: Dr. P. Ordóñex Díaz, National Director of Public Health

Mexico: Dr. Mario Quiñones, Secretary of the Department of Health; Dr. Angel de la Garza Brito, Director of the School of Public Health; Dr. Gustavo A. Uruchurtu, Chief of the Office of Health Education; Dr. Joaquín Astorga, Chief of the Rural Hygiene Office; Ing. Valdés, of the Department

Nicaragua: Dr. L. M. DeBayle, National Director of Public Health

Panama: Dr. Carlos Brin, Ambassador of Panama to the United States

Paraguay: Dr. Raúl Peña, Director of Public Health

Peru: Dr. J. M. Estrella Ruiz, Director of Public Health

Uruguay: Dr. J. C. Mussio Fournier, Minister of Public Health

Venezuela: Dr. A. Castillo Plaza, Director of Public Health

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

John K. Altland, M.D., M.S.P.H., Barry County Health Dept., Hastings, Mich., Director

Otto K. Engelke, M.D., M.S.P.H., County Bldg., Ann Arbor, Mich., Director, Washtenaw County Health Dept.

Robert M. Ferguson, M.D., 612 Fourth St., Rising Sun, Ind., Director, Fourth Dist. Health Dept.

Earle H. Harris, M.D., M.P.H., 217 Lark St., Albany, N. Y., Asst. Dist. Health Officer, State Dept. of Health

Charles A. Kientz, Jr., Municipal Bldg., North Arlington, N. J., Executive Officer, North Arlington Health Dept.

Llewellyn E. Kling, M.D., 4027 S. 24th St., Omaha, Nebr., Medical Director, Cass-Sarpy Health Unit

Clifton F. McClintic, M.D., State House, Charleston, W. Va., State Commissioner of Health

Hollis C. Miles, M.D., Rhea-Meigs Health Dept., Dayton, Tenn., Director

A. L. Miller, M.D., State Dept. of Health, Lincoln, Nebr., State Health Director

William B. Patterson, M.D., 303 W. 15th St., Austin, Tex., Health Officer Trainee, State Board of Health

Albert E. Raitt, M.D., 1501 West Main St., Visalia, Calif., Health Officer, Tulare County Health Dept.

Marion L. Shaddix, M.D., Clay County Health Officer, Ashland, Ala.

Mary Walton, M.D., Chilton County Health Officer, Clanton, Ala.

Harold W. Ward, M.D., Medical Director, Dist. 1, Sutton, W. Va.

Paul L. Wermer, M.D., 409 E. Monroe St., Austin, Tex., Health Officer Trainee, State Board of Health

Laboratory Section

Frances L. Clapp, B.A., Lederle Laboratories, Inc., Pearl River, N. Y., Bacteriologist-in-Charge, Testing Dept.

Rosa M. Falk, M.S.P.H., 20 E. Euclid, Detroit, Mich., Student, Univ. of Mich.

David B. Lackman, Ph.D., Dept. of Public Health, Univ. of Pennsylvania, Philadelphia, Pa., Associate

Lieut. Frederick M. Offenkrantz, M.D., 72 Hansbury Ave., Newark, N. J., Chief, Laboratory Section, Station Hospital, Fort Jay, N. Y.

Anna M. Sexton, Div. of Laboratories & Research, State Dept. of Health, New Scotland Ave., Albany, N. Y., Librarian

Ralph B. Williams, B.S., Public Health Laboratory, State Dept. of Health, Cheyenne, Wyo., Acting Director

Ralph W. G. Wyckoff, Ph.D., Lederle Labs., Inc., Pearl River, N. Y., Associate Research Director

Vital Statistics Section

Almir Godofredo de Almeida E. Castro, M.D., Rua Voluntarios da Patria 190 Casa 12, Rio de Janeiro, Brazil, S. A., Health Officer, Federal Dept. of Health

F. Herbert Colwell, M.S.P.H., 9 Ontario St., City Health Dept., Toledo, Ohio, Director, Div. of Vital Statistics

Frances Sullivan, M.A., M.P.H., 208 Hygiene Bldg., Univ. of Pennsylvania, Philadelphia, Pa., Assistant Instructor in Public Health

Engineering Section

Vaughn Anderson, B.S., Idaho Dept. of Public Health, Boise, Ida., Junior Chemist

Edmund S. Cary, A.B., 807 N. ElDorado St., Apt. 205, Stockton, Calif., Sanitary Engineering Aide, San Joaquin Local Health Dist.

Robert R. DeJonge, B.S., 737 S. Wolcott, Chicago, Ill., Assistant Sanitary Engineer, Cook County Public Health Unit

Ralph J. Johnson, M.S., 203 City Hall, Peoria, Ill., Public Health Engineer, Dept. of Health

Gilbert L. Kelso, B.A., Box 365, Morgantown, W. Va., Principal Sanitarian, State Dept. of Health

Joseph A. Kohout, M.S., Rhea-Meigs Health Dept., Dayton, Tenn., Sanitary Officer

Vernon G. MacKenzie, B.S., U. S. Public Health Service, 3rd & Kilgour, Cincinnati, Ohio, Passed Assistant Sanitary Engineer

Jack E. Mathews, B.S., 721 Rogers St., Olympia, Wash., Sanitarian, Thurston-Mason-Olympia Health Dist.

James H. Simmons, Box 300, Williamson, W. Va., Sanitarian, Mingo County Health Dept.

Michael J. Stankewich, B.S., 65 Court St., State Dept. of Health, Buffalo, N. Y., Junior Sanitary Engineer

Industrial Hygiene Section

Harry D. Baernstein, Ph.D., 4611 Highland

Ave., Bethesda, Md., Associate Biochemist, National Institute of Health

Charles J. DeSimone, M.S., 20 Oak St., Bridgeport, Conn., Assistant Sanitary Engineer (Reserve), Div. of Industrial Hygiene, U. S. Public Health Service

Emily C. Gilsinger, 790 Grand Concourse, New York, N. Y., Industrial Nurse, Employers Mutual Liability Insurance Co. of Wisconsin

Nathan V. Hendricks, B.S. in Ch.Eng., 12 Capitol Square, S.W., Atlanta, Ga., Chemical Engineer, State Dept. of Public Health

Paul W. McDaniel, B.S., R.D. 3, Everett Pa., Erie Dist. Industrial Hygiene Engineer, State Dept. of Health

Harry F. Schulte, B.S. in Ch.Eng., 4255 Maffitt Ave., St. Louis, Mo., Assistant Industrial Hygiene Engineer, State Board of Health

Harold W. Werner, Ph.D., 4608 Rosedale Ave., Bethesda, Md., Pharmacologist, Div. of Industrial Hygiene, National Institute of Health

Wendell C. Wyatt, M.S., 1729 Mississippi, Lawrence, Kans., Assistant Engineer, Industrial Hygiene Section, State Board of Health

Food and Nutrition Section

Marcolino Gomes Candau, M.D., M.P.H., Caixa Postal 251, Rio de Janeiro, Brazil, S. A., Director of City Health Center (Niteroi)

Norman Jolliffe, M.D., 39 E. 75th St., New York, N. Y., Chief, Medical Service, Psychiatric Div., Bellevue Hospital

Samuel Rosenstock, M.S., 211 Smith St., Brooklyn, N. Y., Chemist

Maternal and Child Health Section

Henry W. Clapp, M.D., 519 Dexter Ave., Montgomery, Ala., Associate in Charge, Div. of Maternal Hygiene, Bur. of Hygiene and Nursing, State Dept. of Public Health

Mary B. Dale, M.D., 1035 E. Howard St., Pasadena, Calif., Physician, Maternal and Child Welfare, Los Angeles County Health Dept.

Edward Davens, M.D., 2411 N. Charles St., Baltimore, Md., State Pediatric Consultant, Bureau of Child Hygiene, State Dept. of Health

Herbert R. Kobes, M.D., M.P.H., State Bureau of Health, State House, Augusta, Me., Director, Div. of Medical Services

Walter B. Mount, M.D., 21 Plymouth St., Montclair, N. J., Trustee, The Nursing Council of Essex County, N. J.

John Newdorp, M.D., 118 Grove St., Montgomery, Ala., Obstetric Consultant, State Dept. of Public Health

Robert E. Seibels, M.D., 1336 Pickens St., Columbia, S. C., Consulting Obstetrician, State Board of Health

Antonio J. Waring, M.D., DeRenne Apts., Savannah, Ga., President, Savannah Health Center

Public Health Education Section

Mary D. Carson, M.S.P.H., P. O. Box 3881, Honolulu, T. H., Public Health Educator

Howard W. Ennes, Jr., A.B., 4428 Harrison St., N.W., Washington, D. C., Assistant Health Education Specialist, Div. of Venereal Diseases, U. S. Public Health Service

May Hare, M.S., 110 S. Kendall, Topeka, Kans., Educational Coördinator, State Board of Health

Isabelle M. Hopkins, A.B., 6701 Meadow Lane, Chevy Chase, Md., Director, Editorial Div., Children's Bureau

J. Martin Kinnunen, M.D., 797 Park Ave., Meadville, Pa., President, Meadville Board of Health

Walter J. Krupa, M.S.P.H., 528 Turner St., Allentown, Pa., Executive Secretary, Lehigh County Tuberculosis Society

George B. Larson, State Medical Society of Wisconsin, Madison, Wis., Acting Secretary

Vincent C. Moyer, V.M.D., 1523 N. 26th St., Philadelphia, Pa., Supervisor, Supplee-Wills-Jones Milk Co.

Adolf Nichtenhauser, M.D., American Film Center, 45 Rockefeller Plaza, New York, N. Y.

Martha Shamberger, B.S., 9 Howe St., New Haven, Conn., Student, Yale Univ., School of Public Health

Dr. Gustavo A. Uruchurtu, Ave. San Juan de Letran 24, Desp. 214, Mexico City, Mexico, Chief, Office of Health Education, Federal Dept. of Health

Catherine E. Vavra, R.N., B.S., 1627 E. Third St., Duluth, Minn., Supervisor of Health Education, City Health Dept.

Public Health Nursing Section

Alice M. Bennett, R.N., R.F.D. 2, Putney, Vt.

Gertrude D. Blatchford, R.N., Box 639, Fernandina, Fla., Public Health Nurse, Nassau County Health Dept.

Irene Bower, M.S., R.N., P. O. Box 15, Marshall, Mich., Family Health Counsellor, Calhoun County Health Dept.

Harriet B. Cook, M.A., R.N., 131 Pearl St., Red Bank, N. J., Educational Director, Monmouth County Organization for Social Service, Inc.

Lula P. Dilworth, R.N., M.A., 1302 Trenton Trust Bldg., Trenton, N. J., Associate in Health, Safety & Physical Education, State Dept. of Public Instruction

Estelle M. Dinkins, 750 Seventh Ave., Laurel, Miss., Public Health Nurse, Jones County Health Dept.

Mildred Drury, State Dept. of Health, Lansing, Mich., Regional Consultant

Mary Ferguson, B.S., 1610 Montcalm St., Indianapolis, Ind., Supervisor of Nursing Services, Crippled Children's Div., State Dept. of Public Welfare

Grace K. Haven, 204 Waterloo Bldg., Waterloo, Ia., Director, Waterloo Visiting Nursing Assn.

Grace I. Larsen, R.N., B.S., 309 Dinwiddie St., Portsmouth, Va., U. S. Public Health Service Nurse, City Health Dept.

Alberta M. Morgan, Box 543, Fayetteville, W. Va., Nurse, Fayette County Health Dept.

Edna L. Murdock, R.N., 135 Ave. D., Apalchicola, Fla., Public Health Nurse, Franklin County Health Unit

Mary C. Murray, 2140 Pleasant Ave., Wellsburg, W. Va., County Health Nurse

Gertrude M. Walters, 156 Elm St., Wheeling, W. Va., Senior Staff Nurse, Wheeling Chapter, American Red Cross

Theda L. Waterman, B.S., C.P.H., 245 Melwood, Pittsburgh, Pa., Nurse Coördinator, Pittsburgh Syphilis Control Program

Mary E. Westphal, R.N., 104 S. Michigan Ave., Chicago, Ill., Superintendent, Visiting Nurse Assn. of Chicago

Epidemiology Section

Leland J. Belding, M.D., M.P.H., Waucoma, Ia., Assistant District Director, State Dept. of Health

L. T. Coggeshall, M.D., School of Public Health, Univ. of Mich., Ann Arbor, Mich., Professor of Epidemiology

Marion Friedman, B.S., 2454 Barclay St., Baltimore, Md., Voluntary Worker, City Dept. of Health

Morris Greenberg, M.D., 143 W. 87th St., New York, N. Y., Epidemiologist, Dept. of Health

Rolla B. Hill, M.D., Dr.P.H., Apartado 157, Habana, Cuba, Field Staff, International Health Div., Rockefeller Foundation

Dr. Bernard I. Kaplan, 67 S. Highland Ave., Ossining, N. Y., Acting Director of Syphilis Control, Westchester County Dept. of Health

James W. Moreland, M.D., M.P.H., 236 Fourth St., San Bernardino, Calif., San Bernardino County Venereal Disease Control Officer

Jack L. Troupin, M.D., 334 Eastern Parkway, Brooklyn, N. Y., Physician-in-Training, State Dept. of Health

Edmund G. Zimmerer, M.D., M.P.H., State Dept. of Health, Des Moines, Ia., Director, Div. of Cancer Control

Unaffiliated

Charles Stewart Mott, E.D., 1400 E. Kearsley St., Flint, Mich., President, Charles Stewart Mott Foundation

DECEASED MEMBERS

GEORGE O. ADAMS, Lawrence, Mass., Elected Member 1914, Unaffiliated

JOHN A. O'CONNELL, M.D.V., Boston, Mass., Elected Member 1940, Unaffiliated

DONALD W. SKEEL, M.D., Los Angeles, Calif., Elected Member 1938, Vital Statistics Section

HARRIS R. C. WILSON, D.D.S., Cleveland, Ohio, Elected Member 1919, Elected Fellow 1927, Maternal and Child Health Section

George Parrish, M.D., Los Angeles, Calif., Elected Member 1920, Elected Fellow 1929, Health Officers Section

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WANTED: The following issues of the *American Journal of Public Health*—

April,	1911	January,	1938
February,	1937	February,	1939

The American Public Health Association will be glad to pay postage for the *Journals*.

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearing house on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Unassembled Examinations in West Virginia

The Merit System Council of West Virginia, Box 873, Morgantown, has announced that it is expected that unassembled examinations will shortly be given for the following positions in the West Virginia State Health Department.

Position	*Salary per month*
Chief of Medical Services	$325–$400
Ophthalmologist	275– 350
Director of County Health Work	350– 400
Director, Maternal & Child Hygiene	350– 400
Director, Communicable Diseases	350– 400
Director, Vital Statistics	350– 400
Director, Industrial Hygiene	350– 400
Assistant Director, Maternal & Child Hygiene	320– 375
Assistant Director, Communicable Diseases (Venereal)	320– 375
Assistant Director, Tuberculosis	320– 375
Venereal Disease Consultant	320– 375
Senior Health Officer	320– 375
Junior Health Officer	280– 320
Health Officer Trainee	$200

Residence in West Virginia has been waived in consideration of the applications for these positions. However, residents of the state may be given preference in making appointments. Complete information may be obtained by writing to the Merit System Council.

Los Angeles Civil Service

The Los Angeles County Civil Service Commission has announced an examination for the position of Medical Director at Olive View Sanatorium, Los Angeles County, Calif., for which applications will be received until October 15. This will be an open, competitive examination, salary to be $500 a month. Applicants must be male United States citizens between the ages of 35 and 55, graduates of an approved medical school, with at least 5 years' experience as a specialist in the treatment of tuberculosis. Three of these years must have been in a responsible administrative capacity in a sanatorium or hospital. The sanatorium cares for 1,150 patients directly, and about 400 indirectly. Application blanks and information can be obtained from the Civil Service Commission, Room 102, County Hall of Records, Los Angeles, Calif.

Vacancy in Los Angeles City Health Officer Position

The City of Los Angeles is seeking qualified applicants for the position of City Health Officer paying a salary of $7,200 per annum. While the city charter requires that candidates for this position be residents of the City of Los Angeles if possible, if insufficient competition for this examination is obtained, candidates who do not reside in the city may become eligible if they are otherwise qualified. From the experience of other agencies in this area it is probable that insufficient competition will be obtained and that it will be necessary to waive the residence requirements.

The City Health Officer is the Chief Administrative Officer of the City Health Department and plans and administers a broad public health program, including medical and inspectional services. He is responsible for the proper enforcement of health laws and ordinances and the prevention and control of communicable disease in the city.

Public health physicians who are interested in this position should communicate with the Los Angeles City Civil Service Commission, Room 11, City Hall, Los Angeles, California, for further information.

U. S. CIVIL SERVICE COMMISSION

The Commission has announced that applications will be received for positions as Senior Medical Officer ($4,600), Medical Officer ($3,800), and Associate Medical Officer ($3,200) for appointments in the Public Health Service, with the Food and Drug Administration, Veterans' Administration, and the Indian Service. Forms for application may be obtained from the U. S. Civil Service Commission, Washington.

Junior Public Health Nurse. A civil service examination for Public Health Nurse ($2,000) has been open for some time. Nurses who have been unable to qualify for this examination because of the experience requirement now have an opportunity to qualify through a new Junior Public Health Nurse examination ($1,800) which requires no experience. Applications are also being received for examinations now open for Junior Graduate Nurse ($1,620) and Graduate Nurse for general staff duty ($1,800). Further information and application forms may be obtained at any first or second class post office or from the Civil Service Commission, Washington.

POSITIONS AVAILABLE

Young woman, trained in Home Economics, for group contact work in behalf of an important commercial organization whose products are useful in the protection of public health and the National Nutrition Program. Experience in the public health field or related fields is essential. Office in New York, some travel involved. Write **Box H,** Employment Service, A.P.H.A.

Public Health Engineer with the Department of Health of a city of 100,000 population in the Midwest. Give age, training, experience, and references. Write **Box M,** Employment Service, A.P.H.A.

Southern State Department of Health seeks physicians qualified by training and experience as County Health Officers or as Pediatricians. Write **Box B,** Employment Service, A.P.H.A.

Western State Department of Health will consider applications from physicians with experience and a degree in public health. Write **Box S,** Employment Service, A.P.H.A.

Physician with public health training to serve as full-time County Health Officer in rural South Atlantic area. Salary $3,600 to $4,000. Write **Box C,** Employment Service, A.P.H.A.

County Public Health Nurses for New Mexico. Must have four months' postgraduate instruction under one of the recognized public health nursing courses and one year's experience. Must drive and have a car. Address inquiry to State Health Department, Santa Fe, N. M.

Wanted: Trained Public Health Nurse, starting salary $1,500 per year and traveling expense, increase to $1,700 within 6 months. Saginaw County Health Department, Saginaw, Mich.

The State Department of Social Security and Welfare, Crippled Children's Division, of Phoenix, Ariz., has three vacancies to be filled. Examinations will soon be held for orthopedic nursing consultant, nurse-physical therapist, and medical social worker.

Further information may be obtained by writing to the Merit System Supervisor, Room 208, 128 North First Avenue, Phoenix, Arizona.

PHYSICIANS WANTED IN CINCINNATI

Carl A. Wilzbach, M.D., Commissioner of Health of Cincinnati, has announced that there are vacancies for white male physicians, aged 23 to 50, graduates of recognized colleges of medicine, licensed to practise in Ohio, for appointment to the Cincinnati Health Department. Duties include surveillance over communicable disease, infant and child welfare work, medical service for sick poor, epidemiological surveys of communicable disease, examinations for work certificates, school teachers, etc., vaccination, medical school inspection. Salary $2,640 to $3,360 plus transportation allowance of $240 per annum. Eligible for a retirement system. Persons interested should communicate with Dr. Wilzbach, Commissioner of Health, City Hall, Cincinnati, Ohio.

POSITIONS WANTED

ADMINISTRATIVE

Physician, M.D. Tulane, M.P.H. Johns Hopkins, age 31, experienced as health unit director, prefers administrative position in the South. **A–488**

Physician with M.P.H. from Johns Hopkins 1924, experienced as state director for communicable diseases, as county health officer and as director of field training center, will consider responsible position with good income. **A–483**

Physician, age 35, with Dr.P.H. from Harvard and experienced in administrative tuberculosis control, will consider a good administrative position. **A–476**

Dentist, University of Pittsburgh, D.D. S., M.P.H. University of Pennsylvania 1941, experienced in practice, wishes an administrative position in public health, preferably at state level. **M–450**

HEALTH EDUCATION

Woman with M.S. in public health, University of Michigan, and Ph.D. in health education, New York University, experienced in public schools, teachers colleges, and community public health, now employed as health teaching supervisor, will consider position in school, organization, or industry. **H–236**

Young woman with Master's degree in Health Education, Teacher's College, Columbia University, and background of clinical laboratory work and biochemistry, seeks position as health educator in research or as laboratory assistant in public health. **H–494**

Health Educator, Negro, man with background of High School administration and M.S.P.H. from University of Michigan, seeks position in Health Education. Public agency or educational field. Excellent references. **H–497**

Woman, M.S. in public health, excellent graduate training in education, 8 years' experience as business executive (sales and publicity). Just completed year's research in community education. Seeks good administrative position. **H–496**

Health Educator, M.A. in Education, 10 years' background in community organization for public health education, also teaching of personal and community health at high school and college levels. Public health nurse, able to teach mental and social hygiene as well as general health education. East preferred. **H–498**

LABORATORY

Milk Sanitarian and Technologist, age 37, Ph.D. Bacteriology, Wisconsin, 10 years' experience in milk and food sanitation from industrial and official angle, seeks administrative position with opportunity for research or investigational work preferred. **L–381**

Experienced Bacteriologist, man, 56, with long record as successful university teacher, research worker, and head of department of bacteriology and public health, desires new location in educational, research, or public health organization. Available at once. **L–462**

Experienced woman bacteriologist, now employed, graduate Iowa State College 1925, 6 months on Fellowship at Johns Hopkins 1930, wishes position in serology, immunology, bacteriology or research. **L–458**

Experienced laboratory technician. Woman with 17 years in large midwest municipal laboratory. Has 12 years' background in the Kahn test. Excellent references. Immediately available. Will consider any location. **L–460**

SANITARY ENGINEERING

Engineer, age 38, 3 years' experience as district sanitary supervisor, state department of health, together with work on plumbing, heating and ventilation. Will consider position in the plumbing or heating field or state department of health. Prefers middle western or western states. **E–453**

Public Health Engineer, M.S. Harvard, experienced in public health and industrial hygiene, wishes position of better sort in public health engineering or industrial hygiene. **E–470**

Public Health Engineer, M.S. Harvard, with more than 10 years' experience including 5 years with state division of sanitation, is available. **E–468**

STATISTICAL

Public Health Statistician. Young man, M.S.P.H. Michigan, now employed as supervisor of state health project, experienced in medical research, epidemiology studies and vital statistics, seeks position in city or state health department in Midwest. **S–458**

Opportunities Available

PUBLIC HEALTH PHYSICIANS—(a) Physician well trained in epidemiology to participate in syphilis control program; around $3,000. (b) Young physician experienced in public health and tuberculosis, particularly fluroscopy; opportunity to gain experience in communicable disease control immunization; $3,300, mileage; West. (c) Director for local health department; $4,000, plus travel allowance of $500; county has population of 20,000; Midwest. (d) Young physician for staff of national organization; public speaking and teaching ability advantageous; $3,000, adequate travel allowance. (e) City physician; western state capital. (f) City-county physician; ample assistance from all members of county medical society; $3,000, travel allowance. (g) Physician for rural health service; around $300, mileage; Southwest. PH10–1, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

BACTERIOLOGISTS—(a) Municipal health department; degree and experience required; $125–$150; Midwest. (b) Assistant bacteriologist; city health department; Chicago area; around $125. (c) Bacteriologist; state health department; degree required; must be trained bacteriology, chemistry, parasitology; central state. (d) To assist in research problem in milk tests; experiments conducted on farm; Indiana. PH10–5, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

PUBLIC HEALTH NURSES—(a) Senior nurse and executive director for well organized visiting nurse association; industrial city of 50,000, not far from metropolitan center; $150, mileage, two weeks' salaried leave for illness. (b) County health nurse, $1,800, plus $500 travel allowance. (c) Educational director; active community health association; academic and public health nursing degrees required; $175–$250; South. (d) School nurse; Chicago area. PH10–3, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

SEROLOGISTS—Senior and junior serologists for appointments with state board of health; should be familiar with other diagnostic laboratory work, also; salary for senior serologists, $150–$200; for junior serologists, $110–$150. PH10–4, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

STUDENT HEALTH PHYSICIANS—(a) For well organized student health department in state university; work is largely of out-clinic type, with some opportunity for teaching; offices located in university hospital; hours, 9–5. (b) Men's division of university health department; physician with teaching experience preferred; Midwest. PH10–2, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

Situations Wanted

PUBLIC HEALTH PHYSICIAN—B.A., M.D. degrees, eastern schools; M.S.P.H., University of Michigan; several years' successful experience as director district health department; seeks more responsibility, better opportunity. PH10–6, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

PUBLIC HEALTH NURSE—B.S. degree, state university, with major in public health nursing; 8 years' experience in tuberculosis and public health nursing; served as director of visiting nurse association for several years; taught in public schools before entering training school; age 36; will go anywhere. PH10–7, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

BACTERIOLOGIST—B.S., M.A., Ph.D., large university; splendid experience in teaching and research; 8 years, serologist, large hospital, metropolitan area. PH10–8, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

NEWS FROM THE FIELD

TEXAS JOURNAL OF PUBLIC HEALTH

THE Texas Public Health Association, with offices in Austin, has announced the launching of a monthly periodical beginning with November, 1941, under the masthead of "The Texas Journal of Public Health."

The association has created an Editorial Board comprised of a representative from each section and an additional person who acts as coördinator. The *Journal* will be sent without additional cost to each member of the Texas Public Health Association paying dues. Alan C. Love, M.S., is the Executive Secretary and George A. Gray, M.D., is President of the Texas Public Health Association.

So far as is known, this is the first periodical sponsored by a state public health association affiliated with the American Public Health Association.

PLAGUE CONTROL CONFERENCE

A PLAGUE control conference called by Surgeon General Thomas Parran of the U. S. Public Health Service was held in Salt Lake City, Utah, August 28 and 29, and was attended by health officers from California, Oregon, Washington, Nevada, Montana, Idaho, Wyoming, Utah, Colorado, Arizona, New Mexico, and North Dakota.

Pointing out that infection among wild rodents has progressed steadily during the last several years from the Pacific Coast eastward, Dr. Parran announced that infection among rodents has now been discovered as far east as North Dakota. The purpose of the conference was the stimulation of rat-control programs in urban and rural areas. Since 1900 the Public Health Service reports that there have been 502 human cases and 315 deaths in this country. Two human cases of plague, both in California, have been reported in 1941.

U. S. OFFICE OF HEALTH DEFENSE AND WELFARE SERVICES

ON September 3 President Roosevelt created the Office of Health Defense and Welfare Services in the Office for Emergency Management, issuing a proclamation detailing the functions of the agency and naming Paul V. McNutt, Federal Security Administrator, as director.

According to the press, the chief effect of the move is to change the title and organizational position of Mr. McNutt in the defense structure. He has occupied the position as Head of the Office for Coördination of Health, Welfare and Related Services in the Council of National Defense. It was indicated that the new organization would not replace the Office of Civilian Defense in health and welfare matters.

The chief duties of the new agency were outlined in the proclamation as follows:

Subject to such policies, regulations and directions as the President may from time to time prescribe, the office shall:

A. Serve as the center for the coördination of health and welfare services made available by the departments and agencies of the Federal Government, and other agencies, public and private, to meet the needs of state and local communities arising from the defense program and take necessary steps to secure the coöperation of the appropriate federal departments and agencies relative thereto.

B. Make available to states and localities,

upon request, the services of specialists in health and welfare activities to assist in the planning and execution of such local and state programs.

C. Study, plan and encourage measures designed to assure the provision of adequate defense health and welfare services to the citizens of the nation during the period of emergency, and coördinate studies and surveys made by federal departments and agencies with respect to those fields.

D. Keep the President informed with respect to progress made in carrying out this order, and perform such related duties as the President may from time to time assign or delegate to it.

TENNESSEE PUBLIC HEALTH ASSOCIATION

AT a recent meeting the Tennessee Public Health Association elected the following new officers to serve for the ensuing year:

President: L. M. Graves, M.D., Memphis
President-Elect: W. H. Enneis, M.D., Knoxville
Vice-President: J. J. Lentz, M.D., Nashville
Secretary-Treasurer: R. H. Hutcheson, M.D., Nashville

BRAZILIAN FEDERAL DEPARTMENT OF HEALTH REORGANIZED

ACCORDING to the correspondent of the *Journal of the American Medical Association*, President Vargas through a decree has reorganized the National Department of Health of Brazil. The Federal Bureau of Health through this reorganization attains a status near that of a Ministry. All activities related to problems of health under the federal government with the exception of those concerning the child have been consolidated under a general director in the Ministry of Education and Health. The Oswaldo Cruz Institute, which has been an independent institution of research and study in the general field of experimental medicine, has been included in the federal bureau. According to the decree, the National Department of Health will promote surveys and research relating to health, sanitation and hygiene, the epidemiology of diseases and the methods of their control and treatment, and will directly administer the activities connected with these problems and others related to health. Dr. J. de Barros Barreto has been appointed Director General of the department.

Among the new functions of the Oswaldo Cruz Institute is the education of public and medical specialists and the course of hygiene, and public health has been transferred from the medical school of the University of Rio de Janiero to the Institute.

THEOBALD SMITH AWARD

A THEOBALD SMITH AWARD consisting of a bronze medal and $1,000 has been established with the American Association for the Advancement of Science by Eli Lilly and Company of Indianapolis. It is to be given yearly for "demonstrated research in the field of the medical sciences, taking into consideration independence of thought and originality." The research is not to be judged in comparison with the work of more mature and experienced investigators, and in judging various researches special consideration is to be given to the independence of thought and the originality shown. Any investigator who is less than 35 years of age on January 1 of the year in which the award is to be made and is a citizen of the United States is eligible. Nominations must be received before May 1 each year, and are to be sent by Fellows of the A.A.A.S. to the Secretary of Section N, Dr. Malcolm H. Soule, University of Michigan, Ann Arbor.

SETON HALL COLLEGE NURSING COURSES

THE School of Nursing Education of Seton Hall College, Newark, N. J., has announced a one year program of study in public health nursing, intended for qualified nurses who wish to prepare themselves for staff positions, if they have not had any professional courses

previously, and for those who wish to improve their educational background in the field of public health nursing. Credits earned in this program may be applied toward the degree of Bachelor of Science in Nursing Education with a major in Public Health Nursing.

Caroline di Donato, R.N., is the Director of Public Health Nursing in charge of the courses.

HEALTH PROJECT FOR BURMA ROAD

THE U. S. Public Health Service has announced that a group of sixteen men have been assigned to protect the health of the Chinese workmen building a railroad to parallel the Burma Road through 300 malaria-infested miles in China.

Formed at the request of the Chinese Government, the unit will be in charge of Dr. Victor H. Haas, U. S. Public Health Service, who, with Edward Wright, Sanitary Engineer of the Rockefeller Foundation, were to leave San Francisco for China late in August. Others who will serve with the unit include Dr. Marshall C. Balfour, International Health Board, Dr. Thomas H. Tomlinson, Jr., Public Health Service, William A. Jellison, entomologist, Public Health Service, Fred W. Thomas and Edward R. Lacey, sanitary engineers lent by the Tennessee Valley Authority, Gordon Smith, entomologist of the Tennessee Valley Authority, Dr. Fred B. Manget, who will supervise medical care of laborers, and Dr. Paul H. Stevenson of the China Medical Board. The group will be known as the Medical Commission to the Burma-Yunnan Railroad. It is reported that the U. S. Government has allocated $1,150,000 of lease-lend funds to the work.

DIVISION OF MENTAL HYGIENE IN OREGON

A DIVISION of Mental Hygiene under the Oregon State Board of Health has been established with Dr. Curtis R. Chaffin of Portland of the U. S. Public Health Service as organizer. It is planned that this will be a cooperative venture with the existing facilities for mental hygiene in Oregon.

DR. MC COWN NEW MEDICAL DIRECTOR OF AMERICAN RED CROSS

THE National Headquarters, American Red Cross, has announced that Albert McCown, M.D., Dr.P.H., has been appointed Director of medical and health service effective September 1, succeeding Dr. William DeKleine, who has been given leave until the date of his retirement. Dr. DeKleine has served continuously with the American Red Cross since 1928 and has been especially interested in the programs relating to pellagra, volunteer blood procurement and other medical and public health measures.

Dr. McCown, who is a graduate in medicine and public health from Johns Hopkins University, served during the World War with the American Expeditionary Forces in France, practised medicine in Tacoma and Seattle, Wash., served as Director of Child Hygiene with the Washington State Health Department, as Director of the Division of Maternal and Child Health of the U. S. Children's Bureau, as Deputy Commissioner of Health in the Michigan State Health Department and as Chief of the Research and Training Unit of the Bureau of Child Hygiene of the New York City Department of Health.

CHILD HEALTH WORK IN CALIFORNIA

THE University of California Medical School is coöperating with the State Department of Health in expanding child health work in the state. Dr. Sydney Sinclair, formerly instructor in pediatrics at Yale University School of Medicine, has been appointed associate in pediatrics in California where part

of his time will be spent in teaching, and in addition he will be a pediatric "circuit rider" traveling over the state as agent of the state health department, acting as consultant for county medical societies, individual physicians and groups involved in the care of children.

The new plan is an extension of the postgraduate well baby program started over a year ago which is under the direction of Dr. Amos Christie, associate professor of pediatrics in the medical school.

KANSAS MEETING ON NUTRITION

GOVERNOR Payne H. Ratner of Kansas has appointed a committee on nutrition as part of the defense program. Margaret M. Justin, Ph.D., Dean of the Division of Home Economics at Kansas State College is Chairman and Dr. Paul E. Belknap physician member. The first meeting will be held in Topeka, October 17–18.

UNIVERSITY OF MICHIGAN SCHOOL OF PUBLIC HEALTH

DR. HENRY F. VAUGHAN, recently Commissioner of Health of Detroit, Mich., has been appointed Dean of the new School of Public Health, University of Michigan, Ann Arbor. Dr. Vaughan, who is Professor of Public Health, was also made Chairman of the Department of Public Health Practice.

Public health work at the University of Michigan has been shifted from the Division of Hygiene and Public Health with the transfer of Dr. John Sundwall, Professor of Hygiene and Public Health, and of Dr. Nathan Sinai, Professor of Public Health, to the new School of Public Health.

Other new members of the faculty include Dr. Thomas Francis, Jr., Professor of Epidemiology and Chairman of the department; Dr. Lowell J. Coggeshall, who is Professor of Epidemiology, as well as Dr. Charles F. McKhann, M.D., Professor of Child Health in the School of Public Health and Professor of Pediatrics in the Department of Pediatrics in the Medical School; Kenneth A. Easlick, D.D.S., Assistant Professor of Public Health Dentistry; G. M. Ridenour, Ph.D., Associate Resident Lecturer in Environmental Health, and Harold E. Pearson, M.D., Instructor in Epidemiology.

Among the newly appointed nonresident lecturers in the School of Public Health are Carl E. Buck, Dr.P.H.; Bernard W. Carey, M.D.; Bruce Douglas, M.D.; Haven Emerson, M.D.; William G. Frederick, Sc.D.; Matthew Kinde, M.D.; Carey P. McCord, M.D.; Kenneth F. Markuson, M.D.; William S. Sadler, M.D.; Clarence Selby, M.D.; Lillian Smith, M.D., and Marguerite Wales, M.A.

The School of Public Health offers in the field of public health nursing the Bachelor of Science in Public Health Nursing and the Certificate in Public Health Nursing. The School of Public Health offers the degree of Master of Public Health for graduates in medicine, dentistry, enginering, and those who have the bachelor's degree in public health nursing. The same degree is offered to graduates of accepted undergraduate schools who have had courses which give a satisfactory background in the natural, physical, and social sciences. For the degree of Doctor of Public Health, candidates must be graduates of an approved medical school and complete the courses leading to the degree of Master of Public Health.

It has been announced that plans are complete for a new building in which to house the school, to be occupied late in 1942. In addition to appropriations from the University, funds have been given by the W. K. Kellogg Foundation and the Rockefeller Foundation for construction of the building and for the operation of the school.

Dr. Vaughan has announced that the

scope of teaching in the field of epidemiology, of virology and in tropical diseases is being broadened under the supervision of Drs. Francis and Coggeshall. Currently special concern is being given to the training of virologists through funds provided by the National Foundation for Infantile Paralysis.

NEW HEALTH UNIT IN OKLAHOMA

DR. LOWELL L. STOKES, Anadarko, Health Officer of the Caddo County Health Department, has been placed in charge of a newly created unit in Okmulgee County. Dr. William A. Loy, director of the Ardmore department, and for the past year doing graduate work at Harvard University, has been assigned to Cleveland County. Physicians who have spent the past year in graduate health study and have returned to work with the State Department of Health include: Frank P. Bertram, D.D.S., Oklahoma City; Harry E. Barnes, M.D., of the Bryan County Health Department; Vance F. Morgan, M.D., Lawton and Ferdinand H. Hasler, Jr., M.D., director of laboratories of the State Health Department. Dr. Lloyd H. Gaston of the U. S. Public Health Service has been assigned to work in Oklahoma as part of the cooperative policy planned in defense areas.

TEXAS CHANGES IN HEALTH OFFICERS

DR. HAROLD C. SHILLING, Ft. Worth, has been made director of the Hunt County Health Unit, replacing Dr. Henry C. Wilson, Greenville, who has been appointed to the Tyler-Smith counties health unit. Dr. Wilson succeeds Dr. Robert L. Cherry, Tyler, who has been appointed field director of county health units for the State Department of Health. Dr. John H. Finn, Refugio, was appointed health officer of Refugio County, succeeding Dr. Haddon B. Woods, who is in the Army. Dr. Bennett A. Wight, Kermit, has been placed in charge of the Gregg County Health Department. Dr. Sylvester S. Munger is city health officer of Marlin.

PERSONALS

Central States

IRMEL W. BROWN, M.D.,† formerly Health Officer of Kalamazoo, Mich., who has returned from a year's study in public health, has been appointed Director of a new city-county health unit which has been established in Kalamazoo County.

ROBERT CAMERON, recently Assistant Sanitary Engineer of the Calhoun County Health Department, Mich., has been appointed Sanitary Engineer of the Washtenaw County Health Department, Ann Arbor.

CLIFFORD C. CORKILL, M.D.† of Menominee, Mich., is to resume his position as Director of the Menominee County Health Department, after a 9 months' leave of absence to study for a master's degree in public health at Johns Hopkins University School of Hygiene and Public Health.

CLARE GATES, DR.P.H.,* has resigned from Region Five of the WPA, whose headquarters are in St. Paul, as Regional Welfare Supervisor and Public Health Consultant, to accept a position as Executive Secretary to the Health and Medical Care Division of the Minneapolis Council of Social Agencies.

VIDA H. GORDON, M.D.,† of Lansing, Mich., has been appointed Director of the Sanilac County Health Department.

THEODORE R. MEYER, M.D.† who had

* Fellow A.P.H.A.
† Member A.P.H.A.

served as Health Officer of St. Louis County, Mo., has entered active service in the U. S. Navy at Corpus Christi, Tex. He is succeeded by DR. EDWARD G. MCGAVRAN,† formerly of Monongalia County, W. Va.

AUGUST C. ORR, M.D., of Newberry, Mich., has resigned as Director of the Luce-Mackinac District Health Department to enter private practice in Bismarck, N. D.

EDWIN H. PLACE, M.D.,† has resigned from his position with the Health Unit in Dickinson County, Mich., and is now in Montgomery, Ala. He was succeeded by DR. ALEXANDER WITKOW,† of Brooklyn, N. Y.

NELSON J. ROBBINS, M.D., of Negaunee, Mich., has been named City Health Officer. During the 37 years Dr. Robbins has practised in Negaunee, he has served four terms as Mayor and several years as Health Officer.

BUELL H. VAN LEUVEN, M.D.,† of Petoskey, Mich., who was Acting Director of the Menominee County Health Department, Mich., is now Director of the Grand Traverse County Health Department.

Eastern States

PAUL W. BARENBURG, C.P.H.,† of Cambridge, Mass., has been appointed Public Relations Secretary of the Passaic County Tuberculosis and Health Association, Paterson, N. J., succeeding M. J. PLISHNER, M.P.H., who has been appointed Public Relations Director of the Brooklyn Tuberculosis and Health Association.

AARON WILSON BROWN, M.D., formerly of Rochester, Pa., has been appointed Venereal Disease Control Officer of Richmond, Va. He succeeds DR. CLYDE F. ROSS, who served on a part-time basis.

HAROLD D. CHOPE, M.D.,* Newton, Mass., recently Health Officer of that city, and Associate in Public Health Administration at the Harvard School of Public Health, has accepted a staff position with the Rockefeller Foundation, and will be located in Sao Paulo, Brazil.

MARY E. CORCORAN, R.N., recently Superintendent of Nurses at the New Jersey State Hospital at Greystone Park, has been appointed Psychiatric Nursing Consultant in the Section on Mental Health Methods, effective September 1, with the U. S. Public Health Service.

ARTHUR H. CUMMINGS, M.D.,* formerly of Binghamton, N. Y., has been appointed Health Officer of Portsmouth, Va.

THOMAS FRANCIS, JR., M.D.,† Professor of Bacteriology and Director of the Bacteriologic Laboratories, New York University College of Medicine, has been appointed Professor and Head of the Department of Epidemiology at the new School of Public Health at the University of Michigan, Ann Arbor.

VLADO A. GETTING, M.D.,† recently Assistant District Health Officer of the Massachusetts Department of Public Health in Worcester, has been promoted to the position of State District Health Officer in the same department, with headquarters in Boston.

SHIRLEY KOPELMAN,† formerly of Jackson Heights, N. Y., has been appointed Executive Secretary of the Newburgh Public Health and Tuberculosis Association, Newburgh, N. Y.

ROBERT A. MACCREADY, M.D., of Williamstown, Mass., has joined the Massachusetts Department of Public Health as Epidemiologist in the Division of Communicable Diseases, with headquarters in Boston.

DR. COLIN M. MACLEOD, who has been Associate in the Rockefeller Institute for Medical Research, New York

* Fellow A.P.H.A.
† Member A.P.H.A.

City, has become Professor of Bacteriology in New York University College of Medicine and Director of the Bacteriological Laboratories.

WILLIAM J. MCCONNELL, M.D.,* Assistant Medical Director of the Metropolitan Life Insurance Company, New York, has been appointed a consultant to the Division of Industrial Hygiene, National Institute of Health, Bethesda, Md. He will direct a nation-wide survey of present-day medical service facilities in industry.

NELS A. NELSON, M.D.,* Director of the Division of Genito-Infectious Diseases, Department of Public Health, Boston, Mass., has resigned to accept a teaching position at the School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.

M. J. PLISHNER, M.P.H.,† who for four years has been with the Passaic County Tuberculosis and Health Association, Paterson, N. J., has resigned to accept the position of Public Relations Director for the Brooklyn Tuberculosis and Health Association, New York, N. Y.

WILLIAM P. SHIELDS, M.D., Providence, R. I., has been appointed Epidemiologist in the State Health Department to succeed DR. HARRY B. NEAGLE, who resigned because of ill health.

MORRIS TAYLOR, M.D., has been appointed State District Health Officer of the Massachusetts Department of Public Health, with headquarters in Pittsfield. He succeeds DR. FRANK B. CARROLL, who was recently called to military service at Camp Edwards, Mass.

RICHARD F. THOMPSON, M.D., Assistant Professor of Bacteriology at Columbia University College of Physicians & Surgeons, New York, N. Y., has resigned to become Professor of Bacteriology at the University of Colorado School of Medicine, Denver, succeeding IVAN C. HALL, PH.D., resigned.

JOHN B. WEST, M.D., M.P.H.,† District Health Officer of the New York City Department of Health, has resigned to become Medical Director of the Provident Hospital and Training School, Chicago, Ill. Dr. West will supervise a plan to integrate hospital and health service for a population of about 300,000 in Chicago.

JOHN D. WINEBRENNER, M.D.,† formerly of Muncie, has been appointed District Health Officer for the Indiana State Board of Health, Princeton. He succeeds DR. WALLACE E. CHILDS,† who has been assigned to active duty with the Army Medical Corps at Fort Knox.

Southern States

DEWITT STERLING ABELL, M.D.,† a member of the staff of the North Carolina State Department of Health, has been appointed Director of the Bureau of Sanitation in the Alabama State Health Department.

JAMES C. BRABHAM, M.D.,† of Walterboro, S. C., Health Officer of Colleton County, has been appointed Health Officer of Laurens and Union Counties, succeeding DR. HENRY R. PERKINS,† of Laurens.

WILLIAM A. DODSON, JR., M.D., of Double Springs, Ala., has resigned as Health Officer of Winston County to take a position with the U. S. Public Health Service.

WILLIAM J. DONALD, M.D., of Brewton, Ala., has been appointed an Associate in County Organization in the State Department of Health, Montgomery.

H. R. DUPUY, M.D.,† formerly of Oakland, Md., has been appointed Health Officer for Berkeley County, W. Va., with headquarters in Martinsburg.

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* Fellow A.P.H.A.
† Member A.P.H.A.

LEN D. HAGAMAN, M.D., of Boone, N. C., has been appointed Health Officer of Caldwell and Burke Counties to succeed DR. WESLEY G. BYERLY, Lenoir, who resigned because of ill health.

EVERETT W. RYAN, M.D., of Charleston, Miss., has succeeded DR. DANIEL J. WILLIAMS, Gulfport, as Health Officer of Tallahatchie County.

Western States

THOMAS W. COLLINSON, M.D., has been appointed Health Officer of Scobey, Mont.

GEORGE M. UHL, M.D.,† of San Francisco, formerly on the staff of the California State Department of Health, has been appointed City Health Officer of Los Angeles, to succeed the late DR. GEORGE PARRISH.*

DEATH

MICHAEL E. CONNER, M.D., of New Orleans, La., who worked with GENERAL WILLIAM GORGAS in ridding Panama of yellow fever, died after a short illness. Dr. Conner served 10 years in Panama and later was sent to Ecuador by the Rockefeller Foundation to do yellow fever research, receiving a special decoration from the Ecuadorian Government for his work.

* Fellow A.P.H.A.
† Member A.P.H.A.

CONFERENCES AND DATES

Academy of Ophthalmology and Otolaryngology—46th Annual Meeting. Palmer House, Chicago, Ill. October 19–23.

American Association of Public Health Dentists. Annual Meeting. Lamar Hotel, Houston, Tex. October 26–28.

American College of Surgeons. Hotel Statler, Boston, Mass. November 3–7.

American Dental Association—Xi Psi Phi Fraternity, Annual Reunion, Rice Hotel, Houston, Tex. October 27.

Forsyth Alumni Association, Annual Dinner, Rice Hotel, Houston, Tex. October 28.

American Dietetic Association—24th Annual Convention. Hotel Jefferson, St. Louis, Mo. October 20–23.

American Library Association — Midwinter Conference. Chicago, Ill. December 28–31.

American Public Health Association—70th Annual Meeting. Convention Hall, Atlantic City, N. J. October 14–17.

American Society of Civil Engineers—Fall Meeting. Chicago, Ill. October 15–17.

American Water Works Association—

Wisconsin Section—Hotel Racine, Racine, Wis. October 6–8.

Minnesota Section—Nicollet Hotel, Minneapolis, Minn. October 9–11.

Southwest Section — Hotel Texas, Fort Worth, Tex. October 13–16.

New Jersey Section—Madison Hotel, Atlantic City, N. J. October 16–18.

Missouri Valley Section—Montrose Hotel, Cedar Rapids, Iowa. October 20–22.

California Section—Fresno Hotel, Fresno, Calif. October 22–25.

Kentucky-Tennessee Section—Hotel Andrew Jackson, Nashville, Tenn. October 27–29.

Virginia Section—Hotel Roanoke, Roanoke, Va., October 30–31.

West Virginia Section — Hotel Morgan, Morgantown, W. Va. October 30–November 1.

North Carolina Section—Sheraton Hotel, High Point, N. C. November 3–5.

Four States Section—Lord Baltimore Hotel, Baltimore, Md. November 6–7.

Florida Section—Osceola Hotel, Daytona Beach, Fla. November 13–15.

Association of Military Surgeons of the United States. Brown Hotel. Louisville, Ky. October 29–November 1.

Child Study Association of America. Hotel Commodore, New York, N. Y. November 14–15.

Colorado Public Health Association. La Junta, Colo. November 7–8.

Dairy Industries Exposition. Concurrent with annual convention of the International Association of Milk Dealers, and the International Association of Ice Cream Manufacturers. Automotive Building, Canadian National Exhibition. October 20–25.

Federation of Sewage Works Association. New York, N. Y. October 9–11.

Florida Public Health Association. Orlando, Fla. December 4–6.

Idaho Public Health Association. Lewiston, Ida. October 6–7.

International Association of Milk Sanitarians, Inc.—Annual Meeting. Mayo Hotel, Tulsa, Okla. October 27–29.
Michigan Public Health Association. Grand Rapids, Mich. November 12–14.
National Municipal League — 47th Annual Conference. St. Louis, Mo. November 17, 18, and 19.
National Safety Council. Chicago, Ill. October 6–10.
National Society for the Prevention of Blindness. New York, N. Y. December 4-6.
New Jersey Health and Sanitary Association, Inc.—Annual Meeting. Dinner at Chelsea Hotel, Atlantic City, N. J., October 13. All-day conference at the Stacy-Trent Hotel, Trenton, N. J., December 5.
New Mexico Public Health Association. Gallup, N. M. October 30–November 1.
New York State Association of Public Health Laboratories — Mid-year Meeting. State Laboratory, Albany, N. Y. November 7.
Texas Public Health Association. Corpus Christie, Tex. November 3–5.
West Virginia Public Health Association. Charleston, W. Va. November 17–19.

Foreign

Pan American Medical Association—8th Congress. Buenos Aires, Argentina. 1941.

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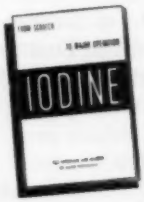

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